

UNANNOUNCED

A CULTURAL GEOGRAPHICAL AND HISTORICAL STUDY
OF THE PINE FORD LAKE PROJECT AREA

WASHINGTON, JEFFERSON, FRANKLIN, AND ST. FRANCOIS COUNTIES, MISSOURI

19950322 052

①



DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

SDTIC
ELECTE
MAR 24 1995
C

ILLINOIS STATE UNIVERSITY

APRIL 1981

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. Recipient's Accession No.
4. Title and Subtitle A Cultural Geographical and Historical Study of the Pine Ford Lake Project Area, Washington, Jefferson, Franklin, and St. Francois Counties, Missouri.			5. Report Date December 1980 Date of Preparation
7. Author(s) Carl J. Ekberg, Charles R. Smith, William D. Walters, Jr., Frederick W. Lange			6.
9. Performing Organization Name and Address Illinois State University Illinois State University Archeological Surveys 104 Edwards Hall Illinois State University Normal, IL 61761			8. Performing Organization Rept. No.
12. Sponsoring Organization Name and Address U.S. Army Corps of Engineers, St. Louis District 210 Tucker Boulevard, North St. Louis, Missouri 63101			10. Project/Task/Work Unit No.
15. Supplementary Notes Conducted under contract with United States Department of the Interior, Heritage Conservation and Recreation Service, Interagency Archeological Services-Atlanta			11. Contract(C) or Grant(G) No. (C) 54034(80) (G)
16. Abstract (Limit: 200 words) As part of an environmental impact study of the area to be impacted by the proposed Pine Ford dam and reservoir project on the Big River in Missouri, holdings of archival materials at several major repositories were searched for information relating to the history and cultural geography of the project area. These data, together with data from published sources and oral statements, were used to (1) prepare a historical summary of the French (1670-1762), Spanish (1762-1787), and American (1787-early 20th century) periods; (2) identify the loci of documented, potentially significant structures and human activity areas where archeological remains may exist; and (3) formulate the basic outlines of models that have high potential for explanatory interpretation of diachronical cultural/geographical patterns. A total of 217 documented potential archeological sites dating from the historic period are listed and described in the report and their locations pinpointed on maps and by UTM coordinates. These include farmsteads, small towns, mines, mills, schoolhouses, cemeteries, and other kinds of sites spanning the three historic periods. Recommendations regarding future historic research activities at Pine Ford Lake and the relationships of documentary and the field archeological research are made.			13. Type of Report & Period Covered Final Report 3/17/80 - 3/17/81 14.
17. Document Analysis a. Descriptors b. Identifiers/Open-Ended Terms c. COSATI Field/Group			
18. Availability Statement	19. Security Class (This Report)		21. No. of Pages 174
	20. Security Class (This Page)		22. Price

(See ANSI-Z39.18)

 OPTIONAL FORM 272 (4-77)
 (Formerly NTIS-35)
 Department of Commerce

92-01892



92 1 22 126

NON-TECHNICAL ABSTRACT

As part of an environmental impact study of the area to be affected by the proposed Pine Ford dam and reservoir project on the Big River in Washington, Jefferson, Franklin, and St. Francois counties, Missouri, holdings of archival materials at several major repositories were searched for information relating to the history and cultural geography of the project area. Information extracted from the repositories--together with information from published sources and oral statements from informants--was used to (1) prepare a historical summary of the French (1670-1762), Spanish (1762-1787), and American (1787-early 20th century) periods; (2) identify places where the remains of buildings, mines, and other cultural features of possible historic significance still may exist and may possess potential for fruitful archeological investigation; and (3) outline several models explaining land and natural resource utilization, transportation networks, economic patterns, and the like which may be useful for future cultural, geographical, and historical studies of the French, Spanish, and American periods. A total of 217 documented historic sites are listed and described, and their locations recorded, in the report. Included are farmsteads, small towns, mines, mills, schoolhouses, and cemeteries spanning the three historic periods. Information about these sites, including their locations, was furnished a team that was conducting an archeological survey of the project area to help them find and identify historical archeological sites in the field. The report concludes with recommendation for comprehensive historical/geographical study of the project area.

The recommendations are that (1) persons familiar with the archival research should visit the project area for on-site inspection of historic sites; (2) additional archival research should be carried out at several major archives; (3) in future research phases at Pine Ford Lake there should be direct coordination between the documentary and the field archeological research to eliminate some of the communications problems encountered in the present study.

DECLASSIFIED AND RELEASED



Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>perform 50</i>	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
<i>A-1</i>	

UNANNOUNCED

A CULTURAL GEOGRAPHICAL AND HISTORICAL STUDY
OF THE PINE FORD LAKE PROJECT AREA
WASHINGTON, JEFFERSON, FRANKLIN, AND ST. FRANCOIS COUNTIES, MISSOURI

Conducted in Accordance with the Terms of a Contract (#C-54034[80])
between
United States Department of the Interior
Heritage Conservation and Recreation Service
Interagency Archeological Services-Atlanta
and
Illinois State University

Funded by the United States Army Corps of Engineers
St. Louis District

Report Prepared Under the Supervision of
Edward B. Jelks, Principal Investigator

by

Carl J. Ekberg
Charles R. Smith
William D. Walters, Jr.
Frederick W. Lange

Edited by
Joan I. Unsicker

TABLE OF CONTENTS

	Page
LIST OF FIGURES.	iv
LIST OF TABLES	v
FOREWORD	vi
ACKNOWLEDGMENTS.	vii
INTRODUCTION	1
THE HISTORIC INDIAN PERIOD	4
THE FRENCH PERIOD, 1670-1762	8
Early Explorations and Mining, 1670-1720.	8
Changes in the French Mining Patterns, 1720-1762.	11
Founding of Ste. Genevieve.	18
The French in Ste. Genevieve After Spanish Takeover	19
THE SPANISH PERIOD, 1762-1787.	21
Changes in the Cultural Geographical Landscape.	21
Changes in the Administration of the Ste. Genevieve District.	21
Mining and Fur Trading, 1762-1787	25
Spanish Administration of the Ste. Genevieve District in the Late Eighteenth Century	27
THE AMERICAN PERIOD.	30
Pre-Civil War Rise to Dominance, 1787-1860.	30
Post-American Revolution Migration	30
Wilkinson and Morgan Plans	31
Trudeau-Carondelet Plan.	32
Era of Transformation, 1795-1821.	33
Moses Austin	34
Retrocession	35
Missouri Statehood	36
The Evolution of Settlement and Economic Patterns	37
Economic and Settlement patterns	37
Models and Initial Agricultural Settlement	40
Pre-Civil War Mining	43

	Page
The Civil War Era	48
Settlement and Economic Patterns in	
the Late Nineteenth Century	50
Nineteenth Century Transportation Systems.	59
THE TWENTIETH CENTURY.	68
THE EVOLUTION OF SETTLEMENT AND ECONOMIC PATTERNS:	
SUMMARY AND MODELS	70
RECOMMENDATIONS.	75
SUMMARY.	81
BIBLIOGRAPHY	83
APPENDIX I: Summary of Informant Contacts	107
APPENDIX II: Summary of Archival Utilization and Evaluation	
of Archival Resources.	110
APPENDIX III: Site Inventory.	116

LIST OF FIGURES

	Page
1. Topography and Settlement, 1878.	53
2. Towns and Topography, 1878	64
3. Nearest Larger Neighbor, 1878.	65
4. Potosi, 1816	67
5. French Period Schematic Settlement Model	71
6. 1820s Schematic Settlement Model	72
7. 1870s Schematic Settlement Model	73

LIST OF TABLES

	Page
1. Population by County, 1830-1900.	51
2. Farmsteads and Environmental Classes, Big River Township, 1876.	52
3. Spacing of Dwellings in Selected Areas of Jefferson County, 1876	56

FOREWORD

This report is the result of a study designed to generate a set of documentary data that will complement archeological data from the Pine Ford Lake dam and reservoir project in southeastern Missouri. An immediate objective was to provide both locational and descriptive data derived from the historical record to an archeological survey team from the University of Missouri at Columbia to help them locate and identify historic archeological sites in the project area. Another objective was to inventory and assess the potential of existing historical resources for future historical/geographical/cultural studies of the peoples who occupied the Pine Ford Lake locality in the historic past. The results were excellent: there are substantial documentary materials in the archives which, when combined with data from future archeological study of local historical sites, surely will lead to significant analyses and interpretations of the communities of people of different ethnic origins that occupied the study area from the late 17th to the early 20th century.

For decades, rescue archeology in the United States was concerned almost entirely with prehistoric archeological sites, but within the past few years it has become standard practice to attend also to the conservation of historic archeological sites in areas that fall under the protection of preservation statutes. This is because it has become widely recognized that the same techniques that produce accurate information about nonliterate past cultures also can be used for fruitful study of quite recent sites where people lived, worked, and played. Although contemporary written documents may exist which contain descriptive information about people and the sites they occupied, documents seldom record more than a tiny fraction of the behavior of the people or the physical structure of the sites. Archeological investigation can greatly amplify our knowledge of the behavior and culture of literate as well as of nonliterate peoples.

Historical archeology has evolved as a special branch of archeology to deal with problems of excavating and interpreting sites of the historic period. The historical archeologist must be competent not only as an archeologist, but also as a historian: that is, he must have the expertise to locate historical documents that relate to the sites he is studying, extract pertinent data from them, evaluate those data critically for historical accuracy and relevance to the problems at hand, and articulate the historical data with archeological data within the context of his research design.

As one who has been heavily involved in rescue archeology for more than 30 years and who has worked at many major historic sites since the mid-1950s, I am pleased to see historical archeology becoming an accepted part of cultural resource management. It is especially gratifying to have had an opportunity to collaborate with the authors of the following report in designing and implementing the historical component of what portends to be a major study in historical archeology.

EBJ

ACKNOWLEDGMENTS

Our research was greatly aided by the cooperation of employees at the courthouses in Washington, Franklin, Jefferson, and St. Francois counties, particularly Mr. Leonard Boyer and Mr. Richard King. We received very valuable assistance from the Rural Parish Workers of Fertile, Missouri, especially Miss LaDonna Herman and Miss Alice Widmer. Dr. Rosemary Thomas, Mrs. Doris Johnston, and Mrs. Claire Condon provided us with various sources of information and were supportive of our efforts. Mr. Tony Crawford of the Missouri Historical Society aided us in the utilization of records there, and Ms. Kathleen McIntyre of the Western Historical Manuscript Collection at the University of Missouri-Columbia provided essential assistance in the use of those archives and in obtaining microfilm copies of the Ste. Genevieve archives for study.

Also appreciated are the maps provided by Mr. Terry Norris of the U.S. Army Corps of Engineers, St. Louis District office, and the input to our research efforts by Dr. Harry Scheele and Dr. Margaret Brown of Interagency Archeological Services-Atlanta during the course of the project.

On our Illinois State University staff, James Baldoni prepared the maps and other figures, Henry Moy cross-checked the site data against the maps, and Joan Unsicker carried the burden of editing the final manuscript. Finally, sincere thanks are extended to our department secretary, Ruth Sperry, for her unyielding dedication in the completing of this report.

INTRODUCTION

The Big River area in southeastern Missouri, approximately 50 miles southwest of St. Louis, is the location of significant surviving remnants of French ethnic populations that first moved into the area in the late 17th and early 18th centuries. Lead-mining activities were significant in the region's early economic development, and tied this area to developments on the Illinois side of the Mississippi River. When the decision was made to study the possibility of damming part of the Big River, it became necessary to assess the potential impact of such a development on the cultural resources of the area.

A two-pronged approach of study was developed by the Inter-agency Archeological Services (IAS)-Atlanta office. The field survey for prehistoric and historic sites was awarded to the University of Missouri-Columbia, and the job of documentary and archival assessment of locational and related settlement, economic, and transportation network analysis of historic sites was awarded to Illinois State University.

The scope of work for the Phase I documentary and archival assessment placed primary emphasis on recording historic site location data from primary resources, assessing the contents and utility of various archival sources for site location data, and developing preliminary economic models that could be tested and enhanced at the Phase II level of research. Thus, the thrust of this report is largely descriptive in terms of the site location data that were obtained. The discussion of the region's historical development is limited to that information necessary as a background explaining the locational data and the economic and transportation models; this report in no way is intended as a thorough history of the region. Likewise, the results of the archival research in various locations are only an assessment of their potential for site location data (with such other pertinent information as was noted), and not an indication of a thorough examination or utilization of those sources. Such activities are only appropriate to the Phase II and III levels of research if and when they occur.

Under the terms of the contract the historical and geographical team was restricted from visiting historic sites in the project area. This effectively precluded us from verifying the presence of sites found in the documents, and from making any assessments of significance.

This report details the results of Illinois State University's archival and documentary research, supplies locational data of historic sites in or near the impact area, and projects these locational data into preliminary predictive models of settlement and economic development. Although no documentary data for historic Indian Site locations were found, background data on historic Indians in the general project region are included because

their activities clearly were of historical importance and should be subjected to further research. This report also provides recommendations for further archival and documentary research that will be necessary to develop more fully the documentary history of the area if the dam project is finalized. The importance of combining Phase II documentary research with the Phase II historic field survey is stressed.

Research was initiated almost immediately after the notification of award of contract #C-54034(80), and an initial meeting was held on 19 March 1980 in the office of Terry Norris, U.S. Army Corps of Engineers, St. Louis District, with Margaret K. Brown representing the Atlanta IAS office. Present from Illinois State University were Edward B. Jelks, Frederick W. Lange, Charles R. Smith, Henry Moy, and Krist Seckinger. Following the meeting, research for the project was begun by making preliminary visits to various county courthouses, libraries and archival repositories in St. Louis and Columbia, and informant contacts in and near the project area. By the end of March, the various platbooks and atlases from which perhaps 90 percent of the site locational data were eventually derived had been located and data recording was well under way.

At the end of March, Mr. Robert Vogel joined the research team for a three-week period, and directed the evaluation of archival resources in Columbia, Jefferson City, and Rolla in an attempt to derive locational data from more general sources. Also during this time, Carl Ekberg began working with the French-period archival data available in Ste. Genevieve and St. Louis. A second meeting was held in the Corps of Engineers' St. Louis office on 7 April with Harry Scheele representing the Atlanta IAS office; also attending were members of the Illinois State University research team and the University of Missouri survey team. One of the main topics of discussion was the coordination of survey data, and locational data for over 100 sites was transferred to the Missouri group at this meeting.

At the beginning of May, the long-awaited microfilm copies of the Ste. Genevieve archives arrived, and Carl Ekberg finally was able to begin assessing of the French-period data. William Walters was able to assess this same material for early American-period. Also during May, the work of compiling the survey results and preparing the Summary Progress Report (submitted on 7 May) was being done on the Illinois State University campus.

The examination of the various microfilms by Walters and Ekberg occasioned three follow-up trips to the project area: one by Moy to obtain additional information on American-period town plans in the area, one by Ekberg to further utilize archival resources in Ste. Genevieve, and a final trip by Ekberg to assess archival resources in the Randolph (Ill.) county courthouse.

The months of June and July were devoted primarily to integrating the various bodies of data and preparing the draft report. Ekberg also was able, while in France on other business, to assess various archives there. This resulted in some additional refinement in the French-period section of the report, and added greatly

to our knowledge of additional archival resources which might be exploited in further research on the Pine Ford Lake area.

In putting together this report, Edward Jelks has overseen the total effort, and Frederick Lange has coordinated the writing efforts of various researchers (Charles Smith on the history and economics of the Spanish and American periods, Carl Ekberg on the French period, and William Walters on American-period settlement patterns and transportation networks) and preparation of the locational maps.

THE HISTORIC INDIAN PERIOD

Although the scope of work did not call for an investigation of historic Indian tribes potentially represented in the archeological record within the Pine Ford Lake project area, this brief discussion has been included in order to provide a balanced picture of the cultural resources possibly threatened by the proposed flooding. The purpose of this section is not to present an exhaustive history of Missouri tribes, but rather, it was prepared with three specific objectives in mind: first, to determine those groups which utilized the project area; second, to identify site-specific location data; and third, to suggest research hypotheses for subsequent project phases.

The literature search began with the Garland American Indian Ethnohistory series which "presents original documents on the history and anthropology of American Indian tribes and groups who were involved in the Indian Claims actions of the 1950 and 1960s" (Horr 1974:7). The primary purpose of this series was to determine land use; thus, it focuses on locational data available for the historic period. The series not only provided a synthesis of the information available on the historic Indian groups in Missouri, but also contains a substantial bibliography which may prove valuable for future research within the Pine Ford Lake area. The project area appears to have represented a unique exploitive zone that was shared by numerous historic tribes. This buffer zone apparently was not occupied or controlled by any particular group, but rather served as a zone of common exploitation, as well as an area within which groups temporarily expanded during times of stress. For this reason, one would expect habitation sites to be few in number and small in scale; site locations may be identified most effectively by a survey designed to recognize transient settlement and mining camps in key physiographic zones. A major problem is the fact that the project area is a small, limited strip along the Big River and several of its tributaries; hence, it does not include the entire spectrum of environmental settings utilized by historic tribes. Then, as now, much of the project area was subject to flooding and consisted of lands not particularly suitable for long-range occupation. The preliminary research, then, shows that several historic tribes probably utilized the area, even though no specific site locations have been identified. A number of primary sources mention various tribes which were present in or near the project area during the time of, and subsequent to initial European contact, and these tribes are discussed briefly below.

According to Chapman (1964:83), Oneota groups moved into central Missouri about A.D. 1500, and may have utilized the Meramec (Big) River basin. Within the project area, Oneota sites may be found on terraces or talus slopes between the Big River and the surrounding uplands. Such locations were suitable for agriculture and for providing access to adjacent micro-environments conducive to hunting and gathering activities.

During the late 17th century, the French began to explore the present state of Missouri, and these early explorers noted Osage and Fox settlements along the Missouri River and its tributaries at that time (Giraud 1974b:4; Houck 1908:240; Chapman 1964:91). Based on the Garland volumes and other primary and secondary sources (Brackenridge 1962; Bradbury 1966; Chapman 1974; Chapman and Henning 1974; Flint 1968; Foley 1971; Gibson 1963; Houck 1908, 1909; Nitske and Lottinville 1973; Marriott 1974; Temple 1966; Voget 1974), it seems that while the Osage utilized the resources within the project area (game, minerals, collectible foodstuffs), their homeland was centered near the intersection of Missouri, Oklahoma, Kansas, and Arkansas some 100 to 200 miles west of the Big River. According to Voget (1974:20), their traditional range did not include the Big River valley. Therefore, while mining sites and temporary camps might be found within the impact area, it appears that large, permanent Osage habitations sites would be rare.

Major George C. Sibley wrote (Voget 1974 from Missouri Historical Review 1915:9:46-47):

They raise annually small crops of corn, beans, and pumpkins, these they cultivate entirely with the hoe.... Their crops are usually planted in April, and receive one dressing before they leave their villages for the summer hunt, in May. About the first week in August they return to their villages to gather their crops, which have been left unhoed and unfenced all the season.

Sibley then described the fall hunt (September to December) and spring hunt (March to May), after which the spring planting took place. Voget (1974:3-5) suggests that hunting and gathering provided most of the food consumed during the year.

While the Osage traditionally traveled substantial distances from their villages to hunt, most of this activity was to the south, west, and north of their homeland, and seldom east within the buffer zone which included the Big River valley. The increasing Euro-American occupation of eastern Missouri during the 18th and 19th centuries, as well as pressures from tribes such as the Kaskaskia, Peoria, Sac, Fox, and Kickapoo who were being forced west of the Mississippi, served to move the Osage farther from the project area (Voget 1974:6-9).

The Oto-Missouri Indians occupied the northwest quarter of the present state of Missouri and apparently did not inhabit the project area (Chapman 1974:20-23). While Oto-Missouri groups may have utilized the area for hunting, collecting, and mineral gathering, no specific site locations were mentioned in the documents (Brackenridge 1962; Bradbury 1966; Chapman 1974; Flint 1968; Foley 1971). Hunting excursions were documented in Iowa, Nebraska, and Kansas, but none was documented to the east near the Big River (Chapman 1974:10-15).

The Illini confederation dominated most of Illinois during the 17th century (Temple 1966:156); however, in 1673 when Marquette and Joliet (Jolliet) traveled the Illinois Country, many Illini groups were just beginning to return from west of the Mississippi where they had been driven by the Iroquois about 1630 (Alvord 1920:64-65). Despite the fact that their traditional lands were east of the river, the Missouri-Iowa territory immediately to the west served as a refuge for the Illini tribes during the early historic period. In fact, Charlevoix (Voget 1974:21) reported that some Kaskaskia groups had sought refuge from the Iroquois in the villages of Osage in west-central Missouri.

While it appears that several Illini habitation sites--including those of the Kaskaskia, Cahokia, and Tamora--may exist within the project area, none was specifically mentioned in the literature. According to Temple (1966:11-54), Kaskaskia and Peoria groups utilized the Big River area throughout the historic period as a refuge and for hunting or collecting mineral resources. By the mid-18th century, European presence in the area began to act as a barrier to traditional land use by the Illinois tribes.

Sac and Fox groups, pushed south and west out of their traditional Wisconsin homelands, were raiding and occupying permanent villages in Iowa and northeastern Missouri during the 18th century (Chapman 1974:42-45; Stout, Voegelin, and Blasingham 1974). Renault complained of Fox depredations in 1725, and De Guis mentioned them again in 1743. Governor Bienville of New Orleans described a Fox village on the banks of the Meramec (Big) River about 1736 (Archives Nationales, serie Colonial 13, A²¹: folio 179). Despite this activity, no Fox habitation sites were identified specifically in the literature as being within the project area.

By 1818, most of the Kickapoo groups had been pushed out of Illinois into Iowa and Missouri. In the fall of 1819, Paschall Cerre, officer-in-charge of the Kickapoo removal, gathered nearly 2,000 people and began moving them west toward southwestern Missouri (Gibson 1963:182-84). It is clear that the United States government did not want the Kickapoo residing in or travelling through the mineral district which included the Big River valley. Again, while the Kickapoo may have utilized resources within the project area during the 18th century, particularly during their raids on the Osage, no sites were identified within the project area.

The Shawnee and Delaware were the largest historic Indian groups near the project area during the 19th century. Despite this, documented site locations are rare, and none pinpointed within the project area itself. By about 1800, these groups had established villages in Missouri near New Madrid and Cape Girardeau (Temple 1966:178). In 1820, a village of 400 Shawnee and Delaware was reported near Jackson, Missouri by Major Stephen H. Long (Temple 1966:181).

While one group of Shawnee remained in southeast Missouri near Lorimier's trading post (Cape Girardeau), a second group

under the leadership of Lewis Rogers moved northward into the Meramec River basin and occupied numerous temporary camps in St. Louis, Washington, and Franklin Counties (Houck 1908:209). One of these camps was situated only ten miles west of the project area near the town of Union in Franklin County (Price and Price 1977:39). Between 1810 and 1820 the Rogers' Shawnee Band farmed and brought cattle to St. Louis to be sold (Price and Price 1977:40).

Unfortunately, because of the absence of locational data for the above-mentioned groups, predictive settlement models which would be accurate and useful for future research cannot be developed. As these groups were essentially hunters and gatherers who practiced agriculture on a minimal basis, their habitation sites probably were closely related to physiographic features conducive to these activities. For the project area, such features would include terraces and talus slopes. Again, however, it must be emphasized that the narrow strip of land under consideration represents only a small segment of the overall environmental setting, and that prime habitation areas within the impact area were limited. The same high-ground locations favored for settlement by historic Indian populations became the primary focus of Euro-American settlement. Therefore, many historic Indian sites may have been destroyed either totally or partially by later Euro-American activity.

To reiterate, the project area falls within a former buffer zone, and numerous historic groups whose homelands occurred in the surrounding areas shared the resources of this unclaimed zone. Eastern tribes, who were from time to time pushed west across the Mississippi during the 18th and 19th centuries, also used this area in the same manner. If a sufficient number of sites can be located by survey or testing, the project area might become a significant research universe for the study of inter-tribal relationships and the nature of native American culture during the historic period. Archeological investigation might provide new insights into the question of tribal response to population, relocation, and environmental stresses exacerbated by the Euro-American presence in Missouri and the Midwest.

THE FRENCH PERIOD, 1670-1762

Early Explorations and Mining (1670-1720)

In the 17th century, the major powers of northwestern Europe (England, France, and the Dutch Republic), began to compete seriously for New World empires with the first European colonizers, Spain and Portugal. The missionary impulse of the Catholic Reformation in France and the mercantile economic policies of the French absolute monarchy meant that France threw itself as heartily into the colonizing enterprise as any European state. This was especially true before Louis XIV's continental wars of the late 17th and early 18th centuries compelled the French to curtail their investment in overseas colonies. As early as the 1670s Colbert, Louis XIV's great minister of finance had to cut back on state investments in Canada because of the demands placed on the French treasury by European warfare.

In any event, because the French had access to the heart of the North American continent via the St. Lawrence river and the chain of Great Lakes, they could cast their net of exploration and colonization more broadly than the English. By the 1670s and 1680s, the French, using Quebec as their base (established in 1608), had dramatically outflanked the English in North America by exploring (Marquette, Joliet, LaSalle) the course of the Mississippi from the Illinois country to the Gulf of Mexico. By the end of the 17th century, French Jesuit missionaries and coureurs de bois had established outposts from the headwaters of the Mississippi at the Falls of St. Anthony (present-day Minneapolis) to the river mission of Cahokia in Illinois all the way to the Gulf of Mexico at Biloxi. The French empire in the center of the North American continent was sparsely populated; ultimately it proved to be fragile and vulnerable, but in 1700 it was breathtakingly vast and bold given its narrow base of support in Quebec.

As early as 1682 Robert Cavalier de La Salle and his lieutenant Henri Tonty reached the mouth of the Mississippi and claimed the Mississippi Valley for France. In 1686 Tonty built "a palisaded house on the Arkansas River" (Giraud 1974b:8), and became one of the first white men to establish a settlement or camp on the west bank. It was visited in July of 1687 by Henri Joutel, a member of LaSalle's ill-fated last voyage, the purpose of which was to explore the Mississippi River (Joutel 1956:151-54).

The following year, La Hontan claimed to have traveled the Missouri River with several soldiers, visiting Osage and Fox villages along the way. From his account, however, it does not seem that he entered the actual project area (Giraud 1974b:4). French traders, accompanied by Kaskaskia Indians, explored portions of Missouri north of the project area in May of 1694 (Houck 1908:240), and seminarian priests, Father Montigny, Davion, and Ste. Cosme, camped just southeast of the St. Francois mining region near Grand Tower in Perry County in 1698 (Houck 1908:241-420).

In 1698, Pierre Le Moyon d'Iberville sailed from France as an official of the royal government and in 1699 he established the outpost of Biloxi as the anchor for French territorial claims on the Gulf of Mexico and in the Mississippi Valley. Before Louis XIV died in 1715, Mobile had been founded (1702), and there were French settlements at both Cahokia and Kaskaskia in the Illinois Country. The term "Louisiane", coined in honor of Louis XIV, was being used to designate the French colonies in North America south of Canada. The Illinois Country was as yet still considered to be part of the province of Canada.

It is difficult to say precisely when the first Frenchmen penetrated west of the Mississippi into the project area. However, three facts seem apparent: (1) the first Frenchmen who arrived in the project area came looking for the veins of high quality lead ore that were found close to the surface of the ground; (2) the French did not discover the veins of lead ore, which had been exploited for some time (millennia?) by the American Indians; (3) the first Frenchmen mined lead in the project area about the year 1700. A French Jesuit missionary, Father Jacques Gravier, noted in his "Journal" for 10 October 1700 (Thwaites 1901:LXV:105) that "we discovered the River Miaramigoua [Meramec], where the very rich lead mine is situated, twelve or thirteen leagues from its mouth. The ore from this mine yields three-fourth metal."

Several things should be noted about Gravier's account. First, he himself did not in fact go into the mining region but merely passed the mouth of the Meramec river while traveling on the Mississippi and heard about the lead mines from Indians, other Frenchmen, or both. Second, the location of Gravier's lead mine, "twelve or thirteen leagues" from the mouth of the Meramec would have placed it well below the project area, although possibly on the Big River, which was usually considered as part of the Meramec in the 18th century. Many 18th-century French maps of the area, for example, the Bellin of 1755 (Tucker 1942:Plate XXIV), show practically the entire course of the Meramec as "terrain rempli des mines", or "land chock-full of mines".

During the first decade of the 18th century, other articulate Frenchmen such as Andre-Joseph Penicaut wrote brief descriptions of the lead mines along the Meramec (Margry 1888:V:407-08) without, it seems, venturing inland from the banks of the Mississippi to visit personally the mining area. Penicaut described the Meramec as the stream that the Indians used to reach a lead mine fifty leagues from the banks of the Mississippi, which, if calculated via a water route, would place the mine on the headwaters of the Mineral Fork near the project area.

Pierre-Charles LeSueur, a practical miner and mineralogist, led the first documented mining expedition into Missouri, in search of this lead mine reported by the Indians. It does not seem that the mine was located (Giraud 1974b:48-50), but interest in the mineral resources in Missouri was stimulated.

In 1702, d'Iberville asked for the exclusive right to work mines in Missouri. His plan included provision for a force of soldiers to protect the miners, the use of Negro slaves, the right to engage in the fur trade, and the right to establish an entrepot at the mouth of the Mississippi (Giraud 1974b:20-24). D'Iberville died shortly thereafter, and his plan was never initiated.

In 1712 Antoine Crozat received a royal charter for the province of Louisiana, conveying rights to: control all settlements, posts, roads, and rivers; expand the province; export necessary foods from France tax free; open and work mines; engage in and control the fur trade; develop communities, factories, and agricultural lands; and control the slave trade from the Guinea coast (Giraud 1974b:250).

La Motte Cadillac was appointed governor of Louisiana in 1713. In 1715 he traveled up the Mississippi to the Illinois country in search of silver mines, which he had been deceived into thinking existed in upper Louisiana. Although disappointed in not finding silver, Cadillac apparently did follow Saline creek westward from its mouth into what is now Madison County and conduct some exploratory diggings for lead (Rothensteiner 1928:202-03). Cadillac left his name to the Mine La Motte in northern Madison County, but he seems never to have gone further north or to have examined the diggings in or near the project area in Washington County.

In 1717-18 a series of French royal edicts restructured the administration and hence the economic direction of Louisiana and the Illinois Country: Illinois became part of the province of Louisiana, which had a new capital at New Orleans (1718), and the entire economy of Louisiana was turned over to the direction of the newly-created Company of the West (later to become the Company of the Indies), commonly referred to as the Mississippi Company. This Mississippi Company was one of the projects of the Scottish financial wizard, John Law, who was running French finances at this time. The success of Law's financial schemes was at least in part dependent upon tapping what was hoped to be vast mineral wealth in the upper Mississippi Valley.

Between 1715 and 1720 a number of persons under the auspices of the French royal government came to upper Louisiana in search of mineral wealth. They clearly hoped to find silver of the quantity and quality the Spaniards had found in Central and South America in the 16th century. Pierre Francois de Charlevoix (Journal Historique 1744:137) claimed that one Sieur de Lochon was sent by the Company of the Indies in 1719 to look for silver on the "Marameg". If this was in fact true, Lochon would have been the first known European to have gone into the project area in search of minerals. However, it seems much more likely that Lochon, like La Motte Cadillac before him, never in fact got up onto the headwaters of the Meramec (Big) River. Jacques de Lochon, who was a Parisian with experience as a smelter (Giraud 1966:250, 374) traveled to the Illinois Country in 1719 with the royal commandant

of the Illinois, Pierre Duque Sieur de Boisbriant (the builder of the original Fort de Chartres, completed in 1720) and an agent of the Indies Company, Loire des Ursins. Des Ursin's own report (Rothensteiner 1928), however, indicated that this expedition investigated only the Mine La Motte region in its quest for precious metals. In any event, this expedition of July 1719 was an egregious failure: the Frenchmen did not have enough of, or the right kind of tools; they were not physically fit for the work of digging mine shafts; and they had left all their smelting pots behind in the recently founded post of New Orleans (established 1718). Des Ursins recommended getting black slaves instead of soldiers for mining work, a recommendation later taken up by the French. Lochon soon left the wilds of the Illinois and returned to Paris, having demonstrated nothing except the futility of searching for silver in the Illinois territory (Giraud 1966:374).

Changes in the French Mining Patterns, 1720-1762

The period of rank dilettantism--characterized by the presence of temporary mining camps with their associated diggings and furnaces distributed throughout the region in an irregular pattern--for French mining in upper Louisiana ended about 1720 with the arrival of Philippe Renault (also Renaut and Renaud) and Philippe de La Renaudiere (Giraud 1966:179-80, 374-75). Renault, a forgemaster from northern France was, in conjunction with some business associates, granted a mining concession of one square league in the Illinois Country as early as 1718. The precise location of this concession is not known, nor is the date when Renault actually arrived in upper Louisiana. According to Charlevoix (1744:139), Renault found a thick vein of lead on the Meramec in the summer of 1720. If this is true (Charlevoix is not always reliable), Renault with his bristling moustache and clay pipe thrust into the corner of his mouth (see caricature on cover of Brown and Dean 1977) was the first European known to have entered the project area in search of lead. We do know that Renault was in the province of Louisiana in June 1720 and that he intended to go into the mining area (Archives de Guerre, A¹: folio 93). In any case, if Renault did conduct this exploration in the summer of 1720, nothing immediately came of his discovery of rich lead ore.

In the spring of 1721, Le Renaudiere, with the title "director of mines for the Indies Company", arrived at Fort de Chartres with a group of miners (Charlevoix 1744:138; Giraud 1966:374). All that we know about La Renaudiere's mining operations in the Illinois Country is contained in a description that he himself drafted in New Orleans in 1723 (Rothensteiner 1928:207-09). There seems no doubt from his descriptions that La Renaudiere visited both the mining area of La Motte and that of the upper "Maramet", which he called the Big River, as he provided rather accurate locations of the mining areas relative to each other and relative to the Mississippi River. La Renaudiere described the mines of the

upper Meramec as very rich in lead, producing as much as eighty percent, and located them about fifty-five leagues upstream from the mouth of the Meramec. Keeping in mind that both the Big River and the Mineral Fork were generally called the Meramec early in the 18th century and reckoning about three miles to the league, La Renaudiere's description would place his Meramec diggings somewhere on the headwaters of the Mineral Fork, in Washington County, and just outside of the pool for the projected Pine Ford Lake project. Like des Ursins before him, La Renaudiere recommended bringing in black slave labor (he apparently had no blacks in his group) to work the mines and felt that a settlement should be created in the mining area.

La Renaudiere's mining efforts on the upper Meramec were surely short-lived and probably rather primitive in nature despite La Renaudiere's fancy title as director of mines for the Indies Company. Charlevoix (1744:138) claimed that no one in his group knew how to construct a smelting furnace, which is difficult to believe. In any event, La Renaudiere soon deserted the mines of the Meramec, although he did stay on for some time in French Louisiana, accompanying Bourgmont on his exploration of the Missouri River in 1724. There is, however, additional proof that La Renaudiere ventured up onto the headwaters of the Meramec with a substantial body of men and established a temporary community there.

On 14 June 1723, Boisbriant, commander of the Illinois Country at Fort de Chartres, and des Ursins, intendant of the Indies Company in Illinois, granted Philippe Renault several large tracts of land for the purpose of conducting lead-mining operations (Kaskaskia Manuscripts 23:6:14:1). One of these tracts of land was described as "a league and one-half of land facing the little Meramec, thither in the Meramec River, thither to the place of the first branch, from there leading to the group of huts called the Cabanage de Renaudiere, being six leagues deep, the river forming the middle of the rhumb line and the river [apparently a tributary] running perpendicular up to where Sieur Renault has his furnace and from there straight to the place called the Great Mine."

There have been several translations of the French of this description (see, for example, American State Papers, Public Lands, II:163, hereafter referred to as ASP), including my own given above. None of the translations, nor the original French for that matter, makes perfect sense. Putting this description together with a map labeled "Renaut, 1733" (Tucker 1942:Plate LXVIII) we can arrive at the following conclusions. First, waterways that now are known as the Big River and the Mineral Fork were considered parts of the Meramec during the first half of the 18th century. Second, that Renault's concession was a roughly rectangular piece of land about five by twenty miles which lay on one of the small tributaries of the Mineral Fork west of the Big River and south of the Mineral Fork in Washington County. Almost certainly part of this large concession of land was in the projected pool area for the Pine Ford Lake Dam; probably Renault's mining

and smelting operations and his community of miners were well outside of the pool area.

For some time the conventional wisdom has been that Renault's mining operations were centered in the area near present-day Old Mines. The only "proof" that has thus far been adduced to demonstrate the validity of this claim is the now famous "Renault brick" that supposedly was found by a surveyor in Old Mines Creek (Hanley 1942:8, n. 13). These kinds of "finds" are most often doubtful, and one well may doubt the authenticity of the brick, which supposedly had Renault's name molded into it.

However, there is no body of evidence to compel us to change the location of Renault's mining community. Moses Austin (1832:10-12), Henry Schoolcraft (1819:16, 20, 66, 74), and the cartographer Josiah Meigs (ASP, Public Lands, III:1816 map) all agree that there was an Old Mine and a Renault Mine, although none of the three agrees on their exact locations. Hanley (1942:7-9, 27, 136) inexplicably, argued that Renault opened only one mine. Almost certainly Renault mined at at least two locations, as Austin maintained. Where Renault's settlement was, as opposed to his mines, is not known. Conceivably it was located on one of the other small tributaries of the Mineral Fork, such as Arnault (originally Renault?) Creek or Fourche a Renault Creek, but unless further evidence is adduced it is perhaps best to be content with the area near Old Mines on Old Mines Creek as the site of Renault's community.

Although the precise location of the site of Renault's mining community has not been determined, it is a site of some significance for the history of the project area and the history of Missouri in general. Renault's settlement may have been only seasonal in nature and probably was abandoned altogether in the mid-18th century. Nonetheless, it was the first more or less permanent secular European settlement in what is now the state of Missouri, and it was clearly the focal point of the first European economic network in the general project area.

What is known of Renault's settlement other than its general location? Clearly Renault had a community of miners settled on the headwaters of the Meramec some months before he received the official concession in June 1723. The concession itself refers to Renault's furnace, and the "Journal" of Diron d'Artaquiette, written at Fort de Chartres, stated that Renault had about thirty Frenchmen working the Meramec mines as early as the latter months of 1722 (quoted in Rothensteiner 1928:210). The original contention that Renault had brought a large number of black slaves with him when he started his mining operations is no longer acceptable; indeed, Artaquiette insisted that the original miners were all Frenchmen. The census of 1732 (Maduell 1972:153) does, however, indicate that by then Renault had seventeen black slaves and only eight Europeans working at his mine. Alvord's claim (1920:154) that Renault received twenty-five blacks each year through the Indies Company also seems quite implausible unless there was an

enormous rate of attrition amongst slave laborers in the mining operations. Over the twenty-year period that Renault ran his Meramec mines, the number of laborers and the ratio of black slaves amongst the laborers certainly changed from year to year, but it is clear that he had taken the advice of earlier Frenchmen and introduced black slave labor to the lead mines.

An interesting and unresolved question is whether Renault's settlement was seasonal or continuous. Moses Austin (1832:10) commented upon the seasonal nature of all lead mining in upper Louisiana when he arrived there at the end of the 18th century. This was probably true, although there is some chance that in making this comment Austin was merely attempting to cast his own larger and more continuous mining operation in a better light. There is no doubt that Renault himself shuttled back and forth between his lead mines and his concession located on the Mississippi River just north of Fort de Chartres. This later concession (Kaskaskia Manuscripts 23:6:4:1) of two square leagues facing on the river was given to Renault expressly for raising foodstuffs to supply his mining communities and had the village of St. Philippe (from Philippe Renault) as its nucleus. Renault thus had one of the satellite settlements that surrounded Fort de Chartres as a stable base of operations for his various mining enterprises.

There is some substantial evidence that Renault's mining community on the headwaters of the Meramec was a continuous rather than a seasonal community, at least for a number of years. First, the census of 1732, cited above, does list wives with the miners at the mining community. Second, the Renault map cited above clearly shows a small fort at the community, and correspondence from Louisiana indicates that Renault had drafted plans for a fort (Bibliothèque Nationale, nouvelle acquisitions française 9310:folio 323). It was necessary because Renault had almost constant trouble with the Indians who resented the encroachments of the Frenchmen into what had been their mining area. If there was in fact a fortified settlement, it is difficult to believe that the Frenchmen would abandon it for some part of each year, allow the Indians to burn it, and then have to rebuild it each year. In Indian territory the existence of a fort implied a continuous community of inhabitants. Lastly, in 1748 an infant girl whose deceased maternal grandparents were listed as having been "inhabitants of the village of the Mines" was baptized in the parish church of Fort de Chartres. This statement, coming from the parish records of Fort de Chartres (Brown and Dean 1977:130), could only be referring to Renault's settlement on Old Mines Creek. The evidence is obviously not conclusive, but it seems possible that a permanent mining village existed somewhere near the present site of Old Mines in Washington County in the 1730s.

Although Renault's mining operations in Washington County went on for twenty years, at this point very little is known about what his settlement was like, precisely how his mining and smelting was conducted, how he got his lead out of the mining

district, or where his depository and entrepot were on the Mississippi River. These subjects have been written about time and again but without any adequate foundation of source materials. What follows is a brief overview of these important subjects constructed from selective use of secondary materials (inadequate though they are), maps, and a scattering of source documents.

There was a mining settlement--perhaps continuous, perhaps seasonal--on the headwaters of Mineral Creek from the early 1720s to the early 1730s. The population of this settlement varied in size from year to year and was just as richly complex racially and socially as the French settlements on the banks of the Mississippi. That is to say that the community was made up--in differing proportions from year to year--of habitants, indentured servants, wage laborers, black slaves, and Indian slaves.

The mining and smelting operations were primitive. These operations probably are portrayed most accurately in the De Guis memorandum of 1743 (Illinois Historical Survey, ANC, G1 465:3; quoted extensively by Hanley 1942:14ff). In this memorandum, De Guis told of the miners probing for lead veins from the surface of the land, digging the lead ore from shallow open-pit excavations, and smelting the ore in makeshift log-heap furnaces. The old story that Renault brought bricks from France in order to construct a more sophisticated furnace is probably without foundation. Once the lead was extracted from the ore it was recast into small bars, loaded onto pack horses, and transported to Kaskaskia.

The often-repeated story (most recently by Bellovich 1970:38) that the lead was cast into horse-collar shaped pieces and stacked on horses' necks for the trek to the river seems altogether incredible. The casting would have been rather intricate and difficult, while from the viewpoint of equine physiology this mode of packing (placing the weight on the animals' necks rather than their backs) would seem impossible. Furthermore, the leaden collars probably would have had to have been recast into bars, ingots or sheets for transport down the Mississippi. There is no real evidence that the above mode of transport was ever used. It would probably be best to put the lead horse collars back in the barn for good.

Despite studies that have been done on lead mining and roads in colonial times, about all that is known regarding lead transport through the 1750s is a brief report by De Guis that lead bars were packed on horses and transported from the project area to Kaskaskia in 1743. Some lead was perhaps shipped by river boat down the Meramec to the Mississippi, for the Meramec was surely one of the avenues that Indians and Frenchmen first used to gain access to the mining district of the upper Meramec. Later in the 18th century, the French manuscripts use the verb charroyer with regard to the transport of lead. This verb would imply the use of the French two-wheel carts, charrettes, for the hauling of lead, and would of course also suggest that the trails coming eastward

out of the mining area had been improved enough to use such carts. There seems to be no evidence at this point that mining vehicles more sophisticated than the charrettes were used at any time during the Franco-Spanish period. Apparently at no time during the 18th century was lead transported from the mining region to the Mississippi River in four-wheeled wagons drawn by teams of draught animals. The roads (trails in fact) were simply too primitive.

What were these trails and where did they lead? Again only imperfect knowledge of the facts is available, although these may be important. De Guis stated that the pack horses carried the lead to Kaskaskia without specifying the precise route that they traveled. Given the fact that Kaskaskia was on the eastern side of the Mississippi, De Guis obviously meant that the pack horses made their way eastward to the river over one or more unspecified trails, where the lead was loaded onto river boats at one or more unspecified points on the west bank of the Mississippi, and was then transported to Kaskaskia to await shipment to New Orleans. Bellovich (1970:38) claimed that Fort de Chartres was Renault's original depository for lead on the east bank of the Mississippi; this may be true, but Bellovich adduces no evidence to support his contention. He also argued (1970:41, 44-45), again with no evidence, that once Renault had founded Ste. Genevieve in 1732 the new village replaced Fort de Chartres as the principal mining entrepot on the banks of the Mississippi. As neatly coherent and logical as Bellovich's analysis is, it raises more questions than it answers (such as Ste. Genevieve being founded by Renault in 1732) and must not be taken seriously.

For the French period (to 1763) lead mining in the general project area was relatively brief and inglorious. Renault established a mining settlement and worked the mines from the early 1720s to the early 1740s. At first, things seemed to have gone well. By 1725 Renault perhaps was producing 1500 pounds of lead per day and had built himself a stone house in the mining settlement (Alvord 1920:159). In following years, however, lead production apparently fell and Renault went substantially into debt (Hanley 1942:11). According to the governor of Louisiana, Perier, in 1733 Renault could not even supply the lead necessary for consumption in the province (Bibliothèque Nationale, nouvelle acquisitions française 9310:folio 316). By 1742 he had given up his lead mining concession and returned to France, although he did not sell out to the royal government until 1744 (Alvord 1920:209). Precisely when Renault quit mining on the headwaters of the Mineral Fork and returned to France is not known, although Bienville, governor of Louisiana in 1741, requested ship passage for Renault in April of that year (Archives Nationales, C¹³, A²¹:folio 179). When De Guis visited the mine in the spring of 1743 Renault seems to have been long gone and the mine was then being exploited by a handful of "volunteers" and 18 or 20 libertines who had been condemned to the mines as punishment for their dissolute lives and for their inability to support themselves. Thus it seems that the

Renault settlement on Old Mines Creek had been turned into a sort of small penal colony/poor farm by 1743.

What caused Renault's mining operation to founder despite the proven richness of the lead deposits in the area of his concession on the upper Meramec? First, Renault never seems to have been free from Indian attacks. The issue of historic Indians in the project area during the French period is rather complex and has not yet been studied in detail (Nasatir 1952:passim). In 1711 Bienville remarked that there were mines west of the Mississippi and that "all the tribes north of the Red River [of Texas] knew about the mines" (Bibliothèque Nationale, nouvelles acquisitions 9310, folio 158). The important point in these remarks is the implication that the mines were the preserve of no one tribe of Indians but were known about, and presumably worked sporadically, by numerous tribes. Later evidence would seem to bear out this point. In the 1720s Renault had to cope with the Fox to protect his mining operations (Archives Nationales, C¹³, A⁹:folios 53 ff). In 1743 De Guis (Memorandum cited, folio 9) adduced continued trouble with the Fox and the Sioux as the reason that Renault gave up mining on the upper Meramec (Big) River. Yet, in 1774 it was the Osage who conducted the famous raid on Mine La Motte in which a number of Frenchmen, including the son of the famous Francois Valle, were killed. It is, of course, well known that the permanent settlements of the Osage in the 18th century were far west of the project area (Chapman 1959:1-67).

The only documentary evidence found during the course of research for the project that might suggest that any Indian tribe had anything more than a temporary camp in or near the project area is a letter written by Governor Bienville from New Orleans in 1736. Bienville mentioned that after an encounter between the Peorias and the Fox, the latter had retired to "a village on the shores of the Meramek (Archives Nationales, C¹³, A²¹:folio: 179)." Since Bienville was writing from Lower Louisiana, he was of course relying only on hearsay evidence, and "the shores of the Meramek" constituted a large expanse of territory. Five years later, in 1741, Bienville wrote categorically (Archives Nationales, C¹³, A²⁶:folio 12) that Indians were exploiting a mine that had once been worked by Renault and his men. Thus, on the issue of historic Indians in the project area the most that can be said is that a number of tribes were in the general vicinity during the French period and that they did, at least from time to time, continue to exploit the lead mines within the region. It seems highly unlikely that any tribe had a permanent settlement in the project area during the 18th century, although their presence was felt keenly enough to help persuade Renault to quit mining on the upper Meramec (Big) in the early 1740s.

In addition to Indian problems, Renault was plagued with financial difficulties. Problems, both financial and administrative within the French royal government and the Indies Company, prevented Renault from receiving the kind of support and credit

required to sustain a major mining operation. The financial system initiated by John Law in 1717 was not fundamentally corrupt, but was based on paper issue that depended for stability upon a rapid return on investment. The French province of Louisiana could not provide such a rapid return, and in the 1720s Law's system collapsed (Giraud 1966:86-87). In 1731 the Indies Company lost its monopoly in Louisiana, and economic control of the province retroceded directly to the royal government. Precisely how these events affected Renault's operation has not been determined, but Hanley (1942:11-13) has shown that there was a direct connection between financial troubles in Paris and financial troubles in the mining district of far-off Upper Louisiana.

Years ago, Shoemaker suggested that "it is not improbable, though not authentic, that a permanent settlement was made in Missouri in 1719 at the present town of Old Mine. . . ." (Shoemaker 1943:225). The 1719 date is almost surely too early for the first settlement, for even the Cabanage de Renaudiere was not established until 1722. However, the Renault settlement (probably on Old Mines Creek) was continuously, though perhaps only seasonally, inhabited by miners and their wives during the 1720s and 1730s. De Guis described the mining community of penal colonists on the upper Meramec in 1743, and the carefully corrected Bellin map of 1755 (Tucker 1942:Plate XXIV) shows lead mines along the Barbué (Meramec) River.

In his description of the lead mines in Upper Louisiana, Moses Austin (1832:11) claimed that the Old Mines settlement was abandoned when lead was discovered at Mine a Breton (present Potosi) in the mid-1770s. This may be true, although Austin might simply have exaggerated the importance of Mine a Breton because it was his own concession from the Spanish government. It does not seem inconceivable that the settlement founded by Renault in the early 1720s maintained a continuous existence throughout the 18th century, and indeed up to the present day. The site of the Renault settlement, surely in continuous existence for several decades, would be an historical archeological site of great interest.

Founding of Ste. Genevieve

It has been noted above that, starting at the time of Renault's concessions in 1723, the French communities on the east bank of the Mississippi had an intimate and integral association with the mining settlements in the general project area; Renault's concession just north of Fort de Chartres was given to him specifically as a basis for supplying his mining communities (Kaskaskia Manuscripts 23:6:14:1).

A related aspect of the project area that has interested historians of the region is precisely when the village of Ste. Genevieve on the west bank of the Mississippi was established. Ste. Genevieve served as an entrepot for the lead-mining communities,

and made it possible for these communities to be somewhat independent of settlements on the east bank. There is no doubt that once established, Ste. Genevieve became the economic focal point of the entire region, serving as a kind of dormitory community for the men who worked at the mines only seasonally and as the port where lead was loaded onto river boats to be shipped down the Mississippi.

There has been a widespread tendency to place the founding of Ste. Genevieve in either 1732 or 1735, although Schaaf (1935) argued vehemently that the founding date must be pushed back into the 1720s. Yealy's (1935) book on Ste. Genevieve is perhaps the most scholarly treatment of this subject, and he fixes the date at 1732 on the basis of a letter referring to the parish of St. Joachim written in 1732. There is no doubt that during its early history, Ste. Genevieve was occasionally referred to as St. Joachim. Yealy, however, was tripped up by unwittingly confusing the parish of St. Joachim in Quebec, from which a number of French settlers in the Mississippi River valley had come, with Ste. Genevieve (Kaskaskia Manuscripts St. Joachim). There is in fact no substantial documentary evidence that Ste. Genevieve existed before 1752 as an established village. Perhaps there was some sort of on-again, off-again settlement on the Grand Champ before that time, as the written records indicate that such a settlement existed there. Mel Thurman's exciting archeological site on the Grand Champ (Thurman 1980) may well reveal much that the documents do not, and we eagerly await his findings.

The 1752 census for the "Vilage Ste Junnevieve" (Missouri Historical Society Archives, Vaudreuil mss:HML0 426) reveals a grand total of 20 human beings, including children and slaves, living in the new village on the west bank of the Mississippi. From these humble beginnings, Ste. Genevieve grew steadily during the 1750s, acquiring its own parish church by the end of the decade. The foundation of Ste. Genevieve must be seen as the last important development in Upper Louisiana during the French period, as legally defined. In the peace treaties of 1763 that ended the Seven Years' War (French and Indian War in North America), the east bank of the Mississippi in Upper Louisiana passed to the British. The west bank, including Ste. Genevieve and its satellite lead-mining communities in the general project area, fell under the legal control of the Spanish monarchy. Peace treaties signed in Paris obviously did not have an immediate effect in Upper Louisiana, but the mid-1760s were a turning point in the history of the Ste. Genevieve region, including the project area.

The French in Ste. Genevieve After Spanish Takeover

There is something of a paradox in the fact that as the Ste. Genevieve region came under Spanish control it became increasingly important as a focal point of French colonial culture in upper Louisiana. This was due principally to two facts. First, although the Spanish government ultimately sent a Spaniard as

lieutenant governor to St. Louis (he arrived in 1770), there was absolutely no attempt made by the Spanish government to Hispanicize Upper Louisiana. The Ste. Genevieve region remained French in population, French in customs, French in language, and even, except for a brief three-year period, French in local administration. Second, beginning in the mid-1760s, French population in the Ste. Genevieve region in fact surged upward because many of the French habitants from the eastern bank of the Mississippi came over to live on the western bank. There was increasing lawlessness on the east side of the river because the English were not taking much interest in Upper Louisiana. In any event, the French preferred to go and live under the crown of Spain, whose king was Roman Catholic and a relative of the French king. Thus the political upheavals of the 1760s did not destroy the French character of Ste. Genevieve and the project area, but left the increasing French population to go, more or less, its own way. What Billon (Annals of St. Louis, 1886:76-77) wrote about St. Louis would apply equally well to any part of Upper Louisiana:

During the thirty-four years of Spanish authority... the place continued to be French in every essential but the partial use of Spanish in a few official documents; the intercourse of the people with each other, and their governors, their commerce, trade habits, customs, manners, amusements, marriages, funerals, services in church, parish registers, everything was French, it was a sine qua non in their appointment; the few Spaniards that settled in the country soon became Frenchmen, and all married French wives, no Frenchman became a Spaniard; The country was only Spanish by possession, but practically French in all else.

Thus although Spanish in law, Upper Louisiana remained French in reality. As will be seen below, this political paradox was the ultimate cause of American expansion into the area.

THE SPANISH PERIOD, 1762-1787

Changes in the Cultural Geographical Landscape

Various historians (Foley 1971:46; Johnson 1950:85), in writing about the Upper Louisiana territory in general and the Missouri territory in particular, have suggested that during nearly four decades of Spanish rule, their impact on the cultural geographical and historical development of Missouri was minimal, and the integrity of French occupance was maintained. This was certainly true from 1762 until the late 1780s, and from an archeological perspective, qualitative changes rather than changes in kind would be expected. During this period (1762-87), the French cultural system certainly evolved, but it did not undergo a major shift in pattern as a result of Spanish rule because: (1) the population remained predominantly French, (2) the French and Spanish royal houses had been and were intermarried, and an effort was made to maintain good relations, and (3) the Spanish sought, in part, to imitate a French-Colonial and administrative system which they admired. For a time, therefore, Spanish impact on the Pine Ford Lake project area was that of reinforcing existing French cultural patterns, a strategy which would, in the long run, render the Missouri territory vulnerable to British and American intrusion.

By the late 1780s, however, a major cultural shift had begun. This movement away from the French and toward the American cultural pattern resulted from those very Spanish policies and practices which initially had served to preserve French patterns in Missouri. Spain's inability to establish a stable, smoothly-operating colony supported by the Spanish cultural system, allowed the French to remain essentially unmolested. The conspicuous absence of Spanish control was eventually exploited by both British and American interests.

Once it was initiated, the process of Americanization could not be halted. The French in Missouri were isolated, without a sympathetic government to insure their survival as the major cultural and political force; furthermore, they lacked the strength of numbers required to retain cultural prominence. As a result, the French were surrounded rapidly by Americans who scattered throughout the countryside, and soon they were relegated to minority status.

Changes in the Administration of the Ste. Genevieve District

The Spaniards did tidy up some of the administrative structure of upper Louisiana, and their work in this respect permits us to use rather more precise nomenclature. Upper Louisiana, all of which was under the jurisdiction of the Spanish lieutenant governor in St. Louis, was broken into five administrative districts

which were governed by local commandants. When Amos Stoddard assumed control of Louisiana for the United States after Jefferson's purchase of the territory, he defined the Ste. Genevieve District in this fashion: "The district . . . is bounded on the south by Apple [flows into the Mississippi about fifteen miles north of Cape Girardeau], and by the Merimak on the north; and the breadth of it on the Mississippi is upwards of an hundred miles. The boundaries to the west have never been designated . . ." (Stoddard 1812:215-16). All of the project area thus falls into what once was the Ste. Genevieve District. The following economic and social overview of the Franco-Spanish period will treat the general project area and Ste. Genevieve as a single unit, for once the village became a prospering entity in the 1750s the lead-mining communities to the west became integral parts of the economy and the society of Ste. Genevieve.

When Spain assumed control of Louisiana in 1762 (Foley 1971:20), Ste. Genevieve was the only organized community in Missouri. There was, however, a transient settlement opposite Kaskaskia; and, in addition, a few small miners' settlements were located at Old Mines and Mine La Motte in the vicinity of the project area (Giraud 1953:49-50). St. Louis was not founded until 1764 when an attempt was made to wrest control of the fur trade from the British in Canada (Foley 1971:23-26).

In acquiring the Louisiana Territory, Spanish officials had three objectives in mind: (1) to control the fur trade west of the Mississippi, (2) to establish a stable and loyal colony which could maintain itself while also serving as a buffer zone to safeguard valuable Spanish possessions in Mexico against foreign encroachment, and (3) to develop the industrial and agricultural base in Louisiana, thus insuring rapid settlement and a flow of natural resources to Spain (Foley 1971:20; Giraud 1953:256-89). Frenchmen in Missouri were not overly enthusiastic about the turn of events which suddenly rendered them foreigners in lands they had formerly considered a permanent part of the French empire (Foley 1971:20). For this reason, many Frenchmen felt that this arrangement was only temporary, and that France would quickly recover the territory; this view did little to promote a smooth transition to Spanish rule, and may, in fact, have contributed to the many difficulties that subsequently led to Americanization after 1787.

Although France had ceded Louisiana to Spain in November of 1762, the first Spanish official did not arrive at New Orleans (the seat of government) until March of 1766 (Foley 1971:20). Thus for the first four years of Spanish rule, Spanish influence and active leadership were absent. The territory continued under French policy during this period, but only on a local level since France was unwilling to provide money or active leadership for a territory no longer theirs.

Once in Louisiana, The first Spanish governor, Don Antonio Ulloa, was forced to operate through acting French commandant Captain Charles Philippe Aubry (Foley 1971:20). Without adequate support from Spain, Ulloa was unable to begin the transformation

of Louisiana into a true Spanish colony. For a time, Ulloa could merely oversee the operation of the territory in its traditional way, and it was not until 1767 that an effort was made to introduce change in the Pine Ford Lake area (Foley 1971:20-22).

In 1767, Governor Ulloa sent Don Francisco Rui on an expedition to the district of the "Ylinneses" (Illinois) to introduce the Spanish government and establish relations with the French and Indians there. A report written 14 March 1767 (Houck 1909:1-19), stated the objectives of the mission and outlined Ulloa's instructions to Rui. Herein Ulloa writes:

The object of this expedition is the preservation to his Majesty of the royal domains that belong to him; and to maintain with the savages the same good relations and accord that the French have been able to preserve. This is the whole affair, and is all that is of moment. If this is not attained through any accident or cause its purpose has not been successful; and on the contrary, the instructions of his Majesty will have been neglected, Its success consists in making use of those means that are suitable for it, and avoiding whatever is contrary to those ends. Consequently, there is need of great prudence, of great reflection, and of great toleration, not only with the savage, but also with the soldiers, and with the other employees who go (Houck 1909:4).

Furthermore, Ulloa apparently recognized the fact that the French were resentful of Spanish rule, and cautioned Rui as follows:

The command of the district whither the expedition is going cannot be military, according to the custom and rules of Spain. In strict terms, what the troops are there to perform is not a matter of military obligation, nor a subject of military command, but if they be asked civilly, courteously, and affably, they will do whatever is needed, especially when it is not asked that they do it free of charge....Besides the government of those districts depends more on politness and urbanity, than on the civil and military departments (Houck 1909:5).

Additional instructions called for the distribution of gifts to the Indians in the French manner, the compilation of reports on all activity in the area, the construction of forts, and distribution of lands among settlers.

The difficulties with British traders is also mentioned. Ulloa urged Rui to see that the English were prevented from entering Louisiana, and that good relations were maintained with the

Indians. Furthermore, Rui was instructed to promote harmony with the British east of the Mississippi since it was recognized that they were a serious threat to the new territory of Louisiana (Foley 1971:24-45).

Rui's mission met with little success, primarily because of his incompetence. The forts were not completed, and French reaction against new trade restrictions announced in St. Louis resulted in his rapid removal late in 1767. Ulloa also was replaced after the French revolted when the trade restrictions were announced at New Orleans (Foley 1971:22).

Early attempts to transform Louisiana into a Spanish stronghold were unsuccessful. Initial problems in establishing control allowed the French to remain a dominant force until 1787. Ulloa attempted to relocate Acadians in 1765 after recognizing the need to expand Missouri's population in order to fend off British activity in the region. The attempt apparently failed, and of the 650 families who came to New Orleans in 1755, it seems that none reached Upper Louisiana (Houck 1909:27). The small number of Spaniards who came to the Missouri territory did so mainly to occupy key military or civic posts and the few who remained were absorbed quickly by predominating French elements (Foley 1971:46). The marked absence of Spanish settlement, restrictive trade policies, and a population which remained essentially French prevented a major shift in cultural tradition. A power vacuum was in the making which would be open to exploitation by British and Americans alike (Foley 1971:46-62).

A report written by Captain Piernas, Rui's replacement, suggested that only two settlements were truly under Spanish influence in 1768--New Orleans and Ste. Genevieve. He stressed the need for more farmers and complained that it was difficult to establish Spanish rule given the transient nature of the French (Foley 1971:46-62; Houck 1909:66-75). He also wrote that "The civil and military department [Illinois and Missouri] is governed by a council [referring to the French] composed of four useless habitants and one attorney, a notorious drunkard, called La Bussiere" (Houck 1909:73).

During the 1700s, the attempt to convert Louisiana to a successful Spanish colony was failing even though mining continued on a small scale, and farming increased (Foley 1971:46-62; Houck 1909:51-100). The territory still was predominantly French, and the British were more successful in the fur trade than the Spanish. In both Ste. Genevieve and St. Louis, the slave population had been increased to nearly one third of the total in the hope that larger scale farming could be encouraged. During the early part of the decade, an attempt was made to encourage Catholics from France, Italy, and Germany to immigrate; free land, grain, livestock, and farming implements were offered as incentives. The anticipated spurt in immigration failed to materialize (Foley 1971:26).

Between 1777 and 1787 efforts were made to attract French Canadians living in Illinois in the hope that Missouri's population could be sufficiently bolstered to withstand British

activities in the region. It was also felt that these immigrants might become loyal Spanish subjects in a short time because of their Catholic traditions. In January of 1778, Bernardo De Galvez requested that the crown approve his plan for subsidizing these immigrants and approval was received in April of that year (Houck 1909:152-53). A second letter written to the crown by Galvez (Houck 1909:153) stated;

I will employ all the means in my power
to influence those travelers to remain,
and also to attract some French Canadian
families, being Catholics, of the Apostolic
Roman church.

The plan to provide substantial sums of money for the settlement and subsidization of these new colonists, thus further endearing them to the Spanish crown, was discussed in other correspondence (Houck 1909:152-57). Despite this effort, the plan was a failure; sufficient settlers did not move into Missouri, and those who did typically settled in established French communities which remained bastions of the French lifeway.

At the same time the Spanish were trying to bring Catholics into Missouri, they were engaged in an active campaign to keep American Protestants out. Prior to the Revolutionary War, however, few Americans desired to live west of the Mississippi mainly because loyalty oaths were required and religious freedom was not guaranteed. Furthermore, trans-Allegheny movement was not yet sufficient to drive early occupants of Kentucky and Tennessee further west.

The Revolutionary War soon became an object of concern to both Spain and Britain because it threatened to disrupt the fur trade, Indian alliances, and the control of major portions of the New World. Spain entered the war on 8 July 1779 in the hope that the conflict with Britain might eliminate British presence in the Louisiana territory. Britain, however, had already established a firm posture in the Mississippi valley, and easily overcame Spanish attempts to expel them from the territory. By the end of the war, much of the Upper Louisiana territory was under British control, and Spanish officials were forced to ignore illicit activity north of Missouri and restrict their trading activity to the southern district (Foley 1971:31-33).

Mining and Fur Trading, 1762-1787

This phase was essentially a continuation of the French period. Seasonal and year-round mining continued during this period, but the former became increasingly less common as urban centers developed. Landscape features came to include mills, bridges, permanent roads, stores, churches, and cemeteries and generally reflected the French cultural tradition. The French rural community--with common pasture, farm, and woods--expanded into the countryside, but never came to dominate it, possibly because of the low immigrations rates, meagre population, and the fact that the French remained in Missouri with no aid from their own govern-

ment. Most of these villages were arranged in the conventional rectilinear pattern; agriculture remained the primary activity.

Mining patterns in the general project area changed with the discovery of rich lead ore at the present site of Potosi by Francois Azau, who was called "the Breton" because he was originally from Brittany. Schoolcraft (1974:18) claimed that Breton had been an employee of Renault decades prior to his discovery (probably 1774), and that he still was living in Ste. Genevieve. In any event, Breton and others soon began to exploit the rich lead ore in the area of Mine a Breton, as the new mining region was called in honor of its discoverer. Although there are no good figures on the amount of lead being shipped through Ste. Genevieve for most of the 1770s and 1780s, the figures from the 1790s (Swartzlow 1934:30) show clearly that Mine a Breton was the most productive lead mine in the Mississippi Valley at the end of the 18th century.

During the preceeding French period, mining and the fur trade had been the primary economic activities in Missouri. However, the seasonal nature of both activities and the absence of permanent settlements associated with them, produced only limited data for future archeological investigation. During this period, for example, most mining in the project area was done on a seasonal basis. Between August and November, French residents of Illinois, and later Ste. Genevieve, would come to the St. Francois mining district to locate and recover ores. As these miners lived in temporary camps which were essentially undocumented, it is doubtful that substantial remains can be found unless an effort is made to locate diggings from this period and develop testing strategies for recovering cultural materials from these transient camps.

During the Spanish Period, mining continued much as before, and the impact on the landscape was slight, except in the immediate vicinity of the few villages and mines scattered about the region. The only major permanent villages were Ste. Genevieve, New Bourbon, Mine La Motte, Old Mines, and Mine a Breton.

The difficulties Spain encountered in establishing a stable colony in Upper Louisiana also contributed to the stagnation of the mining industry. Since administrative and military control were never well established, little could be done to encourage improvements in either mining or agriculture. Thus, mining experienced no great changes during the Spanish occupation. After 1787, Americans began moving into Missouri in large numbers, and initiated the first significant changes in the mining industry.

Although no archeological sites from this phase have been documented for the project area, it is likely several may be found. Most activity was just outside of the project area, around Mine La Motte, Mine Renault, and Mine a Breton, but temporary camps would be expected along the Big River. As these were essentially exploratory and temporary, none were carefully documented and little may remain for identification and further study.

As with the mining industry, the fur trade was seasonal in nature. It was conducted by traders who regularly traveled the interior rather than establishing posts or communities from which to operate. Just prior to the Spanish period, the French fur trade had suffered a rapid decline as a result of European wars, British advances in the New World, and Indian hostilities (Smith 1978:27-38). Traditionally, the French presence in the back country was restricted chiefly to traders and missionaries who forayed into the Missouri territory on a temporary basis. The French were reluctant to settle in the area, thus they could not provide the material, emotional, or human resources required to maintain control of the region when Americanization began after 1787. In a sense, the Spanish regime suffered the same fate, as their inability to establish Spanish communities and gain control of the region led to the development of a power vacuum which later would be exploited by both British and Americans. For this reason, archeological evidence of trade activities during the Spanish period also is sparse. Thus, for the French period, studies (archeological or historical) must include Illinois settlements. For the early Spanish period (1762-87), research should focus on documentary searches and the identification of archeological deposits at Ste. Genevieve or St. Louis.

Spanish Administration of the Ste. Genevieve District
in the Late Eighteenth Century

Finally, the French community living within the Ste. Genevieve District under the Spanish regime during the 1770s through the 1790s will be examined. In the entire district there was but one permanent community large enough to be called a village--Ste. Genevieve itself. The settlements at the mining sites--Mine a Breton, Mine La Motte, and perhaps Old Mines--probably were only seasonal, although this point is disputable. In 1793 the settlement of New Bourbon was established on the hills one mile south of Ste. Genevieve. This adjunct to Ste. Genevieve was founded by emigres from the French Revolution and was always dependent upon its larger and older neighbor.

Until the late 1790s the European inhabitants of the Ste. Genevieve District were almost exclusively French. It would be a gross error, however, to imagine Ste. Genevieve as a kind of a quaint French community simply transplanted from France to the Mississippi River valley. Instead of a purely European population, Ste. Genevieve, like the other French communities in upper Louisiana, had a rich and complex mixture of French, blacks, Indians, mulattoes, and half-breed French Indians. Ste. Genevieve's population was almost one-half black in 1799 (ASP, Misc. I:383), and it is clear from the parish records of other French communities that a fair amount of miscegenation was going on (Brown and Dean 1977:78, 334). Indeed, all in all there was apparently a sizable number of bastard children of all shades and colors. The venerable Papa Valle, Francois Valle I, commandant of Ste. Genevieve (1764-83) had one recorded bastard daughter (Ste. Genevieve Parish Record: file #237), and one suspects that the octoroon "of

the paternal household" recorded in Valle's estate when he died in 1783 (Missouri Historical Society Archives, Valle papers) may have been Papa's daughter. Given the seemingly general sexual liberty amongst the French in the Mississippi River valley, one wonders why objections were raised when Louis Coyteux, a citizen of Ste. Genevieve, was found cohabiting with an Englishwoman in 1796. Francois Valle the younger, commandant of the town, was prompted by the parish priest and ordered Coyteaux to get rid of his English concubine within 24 hours (Ste. Gen. Archives: folder 403). This was a rather harsh sentence for the usually non-Puritanical French, and it seem possible Coyteaux's offense was that he took up with an English woman.

The records of the public sales tell us a good deal about the economy of the Ste. Genevieve District. For example, at a sale that transpired in town in 1777, goods purchased could be paid for in flour, lead, or deer skins (Ste. Gen. Archives: folder 103): beaver pelts usually were taken in payment for debts as well. Thus we see the Ste. Genevieve District as a community of farmers, hunters, trappers, and lead miners, which exported flour, deer skins, beaver pelts, and lead in return for the finished products brought up river from New Orleans.

The work force that supported the productive capacity of the district was made up of habitants, hired hands, indentured servants (engages), and black and Indian slaves. Slavery was an altogether accepted part of this French-like colonial society, and the same priest who could condemn a man and woman for living together out of wedlock was himself a dealer in human flesh (Ste. Gen. Archives: folder 403). A detailed study would be required to ascertain the extent to which the rigours of slavery were mitigated by the French Code Noir, an edict promulgated for all of Louisiana in 1724. There is some evidence (Ste. Gen. Archives: folder 404) that the code prohibited selling children away from their mothers until they had reached puberty. Slaves certainly were used in the lead mines until well up into the 19th century, and this use of slaves as miners was an unusual if not unique occurrence in North America.

Throughout the second half of the 18th century, the connection between the town of Ste. Genevieve and the hinterland continued to revolve around the lead mining industry. Although there were some disputes over rights to concessions in the lead-mining districts (Ste. Gen. Archives: folder 389), there seemed to be, until the very last years of the century, little competition for land, and a rather casual attitude about who owned what. Indeed, custom and tradition and public opinion seemed to govern the exploitation of the lead veins, for there was no surveying done in the mining area until Antoine Soulard, the official surveyor from St. Louis, arrived in 1800 to settle the dispute over the vast Moses Austin concession (Hanley 1942:126).

Until Austin's arrival the lead-mining operations were much like they had been back in Renault's time. The lead ore was extracted from veins near the surface without using deep shafts; the ore was then smelted in primitive log-heap style furnaces, recast

into small bars, and transported eastward to the banks of the Mississippi, either on pack animals or in two-wheeled charrettes. We do not know precisely the route that led from Mine a Breton to Ste. Genevieve in the 1770s through the 1790s, even though this was perhaps the most important artery in the Ste. Genevieve District. This may have been the old Road of the Grand Osages (Bellovich 1970:30, 41-42, 47) which ran west from a point on the west bank of the Mississippi just across from the Mitchi-gamea Indian village to the headwaters of the Meramec, the route which De Guis had traversed on his excursion to the lead mines in 1743. This road was surely more an Indian trail than a road, and it is unlikely that this main artery of the lead-mining industry could accomodate two-axle, four-wheel wagons even at the end of the 18th century.

THE AMERICAN PERIOD

Pre-Civil War Rise to Dominance, 1787-1860

Discussion of the settlement and economic models for the project area in the American period, as well as the transition from French to American patterns, must be placed in both international and regional contexts. These political and geographical contexts greatly influenced the development of topics of inquiry relevant to the history of the project and include such issues as the processes of cultural change from French to American, the identification and clarification of settlement orientations with respect to the environment, the importance of farming and home industry in the lives of the early inhabitants of the project area (particularly with respect to the local mining industry), and the nature of the slave culture.

Post American Revolution Migration

After the Revolutionary war, Americans began moving west across the Alleghenies in earnest, and it was not long before American movement into the Louisiana territory, and Missouri in particular, posed a serious threat to Spanish rule. This movement toward Missouri followed the Ohio River with immigrants chiefly from Kentucky, Tennessee, North Carolina, and Virginia. During the early 19th century, Germans from Pennsylvania also moved into the territory. Slaveholders were particularly attracted to Missouri; the climate farther south was considered unhealthy, and slaves were not permitted north of Missouri as a result of the Northwest Ordinance passed in 1787 (Brackenridge 1962:116; Foley 1971:47; Gerlach 1976:13-15).

Gerlach (1976:15) also has suggested that early settlers in Kentucky and Tennessee often did not file land claims. Later settlers then were able to claim improved lands and force the original occupants west. Brackenridge (1962:117), who visited the Pine Ford Lake area in 1811, suggested that many Americans, accustomed to living on isolated farmsteads with unlimited pasturage in Kentucky and Tennessee, moved west into Missouri when civilization caught up with them.

As the flow of Americans advanced toward the lands west of the Mississippi in increasing numbers, the question of navigation rights on the Mississippi River emerged as a major controversy. Fearing the growth of these westernmost American settlements and their potential expansion into Spanish holdings west of the river, an attempt was made to destroy American settlements by shutting off this commercial outlet (Foley 1971:32-33). A letter written in June of 1784 by Governor Galvez stated that neither the English nor the Americans had rights to free navigation on the Mississippi, and furthermore, if the proper duties were not paid, ships and goods would be subject to confiscation (Houck 1909:237).

The reaction of American settlers along the Mississippi was threat of force. Recognizing its inability to actively resist, Spain attempted to modify settlement policies enough to alleviate the strain, hoping it could retain control. In 1787 Spanish officials announced that Americans would be allowed to send produce down the Mississippi after paying a duty and would be welcome to settle in their territory if they would take an oath of loyalty to the crown. Americans agreeing to these terms would be given free land and guaranteed religious toleration. Few Americans responded to the offer (Foley 1971:32-34).

During the 1790s, American settlements sprang up along the Meramec, Plattin, Joachim, and Big Rivers and many smaller streams associated with them. Bridges were built, roads laid out, mills erected, and farmsteads developed; however, documentary evidence for these early American landscape features is too general and vague for use in locating specific sites or building predictive models. It is known that Americans tended to settle throughout the countryside, often in relation to the presence of minerals near the surface, and that the earliest settlements were generally associated with rivers and creeks (Houck 1908:379-87). American settlements were typically small until 1798 when Moses Austin arrived and triggered several changes which subsequently affected the cultural resource base in a major way.

Wilkinson and Morgan Plans

Recognizing the potential for personal profit once American settlement was initiated west of the Mississippi, Americans James A. Wilkinson and Colonel Morgan each proposed plans to Spanish officials in 1788 whereby their own interests and those of Spain would be served. Wilkinson suggested two alternatives, the first being that Spanish officials use their control over navigation and commercial privileges to create a Kentucky faction loyal to Spain; this faction would, in time, lead to a move to separate that province from the United States under his leadership. His second alternative was that Spain liberalize immigration policies to attract American settlers to Louisiana, while at the same time depopulating Kentucky and removing the threat of unauthorized encroachment. Neither alternative was approved by the crown, although Wilkinson was appointed Spanish agent in Kentucky in the hope that he could carry out the first alternative unofficially on his own. After finding that he could not execute this plan, he soon abandoned his efforts. Morgan, on the other hand, proposed a settlement plan whereby he could establish a colony on the bank of the Mississippi near the mouth of the Ohio; have the right to name all local officials; make land grants in full title; guarantee complete religious freedom to colonists; advertise that settlers would be able to bring all personal possessions into Louisiana free of duty; and allow the colony to make its own laws subject to royal veto. Morgan founded New Madrid in 1789 prior to royal approval, believing that the support of Spanish governor Miro would insure the success of the plan in Spain. Again, royal officials

would not grant approval, and most of the American settlers abandoned the settlement and returned to Illinois.

At this late date, Spanish officials still hoped to secure Louisiana without making compromises with the Americans; several years later Spanish officials would regret not approving either the Wilkinson or the Morgan plans (Foley 1971:34-36).

Trudeau-Carondelet Plan

The inability of the Spanish to control and populate Louisiana provided the opportunity for British traders to operate at will in Upper Louisiana between 1762 and 1792. In order to curb this activity, Governor Carondelet and Lt. Governor Zenon Trudeau formulated a plan whereby trade regulations would be liberalized in an effort to regain control. Between 1793 and 1794 a trading company was formed in the hope that combined resources could turn the tide; however, a lack of quality goods at competitive prices and petty rivalries led to the eventual failure of the plan and left the Spanish trade system in total disarray (Foley 1971:39-41). This merely allowed for increased British success in Upper Louisiana.

American expansion into Missouri during the last years of the 18th century was successful for several reasons: (1) Spain could not establish administrative or military control of the Missouri territory; (2) the population remained essentially French and a shift to the Spanish cultural tradition did not occur; (3) Spain was not able to encourage a sufficient number of Spanish citizens to immigrate to Missouri and initiate a change in cultural pattern; (4) French occupation was concentrated in a limited number of communities, thus Americans were able to expand throughout the countryside unopposed; (5) after 1795, Spain recognized the futility of establishing a Spanish colony in the region and did little to improve or maintain active leadership; (6) the Missouri environment was conducive to settlement as it contained sufficient mineral and farm-pasture lands to support a large-scale American migration, and (7) changes in Spanish policy between 1787 and 1795 made American settlement in Missouri attractive (land grants, no taxes, religious freedom, subsidies, resource base, etc.). The colonization of Missouri by Americans was rapid; by 1804, when the United States officially assumed control of the region, American farmsteads and communities dominated the landscape, and the once dominant French comprised less than 44 percent of the total population (Gerlach 1976:13).

The threat of American expansion had been recognized as early as 1783 by Count Aranda, who wrote:

This federal republic is born a pigmy,
if I may be allowed to express myself.
It has required the support of two such
powerful states as France and Spain to
obtain its independence. The day will
come when she will be a giant, a colossus
formidable even to those countries. She
will forget the services she received from
the two powers, and will think only of her

own aggrandizement. The liberty of conscience, the facility of establishing a new population upon immense territory...will attract the agriculturists and mechanics of all nations, for men ever run after fortune, and in a few years we shall see the tyrannical existence of this very colossus of which I speak....These fears are well founded; they must be realized in a few years, if some greater revolution even more fatal does not sooner take place in our Americas (Houck 1908:303).

At this time there were no known American settlements in Missouri. The wave of American settlers, however, had reached the Mississippi, and represented a very real threat to the Spanish colony. Early American settlements in Illinois would soon serve as bases for expansion into Missouri.

Era of Transformation, 1795-1821

With French armies swarming the border in northern Spain, the Spanish government decided to resolve its conflict with France and break its European alliance with Britain. In this way Spain would eliminate the threat to its homeland and allow its attentions to be turned to the problem with Britain in the Louisiana territory. Fearing an alliance between Britain and the United States would spell certain doom for Spanish interests in the New World, an effort at reconciliation with America was attempted; it was also thought that once Americans felt welcome in Louisiana they would aid in the struggle against Britain. Free navigation of the Mississippi, right of port at New Orleans, and the establishment of the 31st parallel as the southern boundary of the United States were agreed upon in 1795. In 1796-97, handbills outlining advantages for Americans settling in Louisiana were circulated. Incentives contained on these fliers were free land; no taxes; livestock, grain, and farming implements for the first year; and religious freedom. By this time Spain had recognized the futility of building a strong royal colony, and henceforth would not waste money on its administration, using it primarily as a tool in diplomatic negotiations (Foley 1971:42-44).

The Ste. Genevieve District, including the general project area, experienced profound and rapid transformation during the decade 1795-1805. The most obvious change, though also the most superficial, was at the level of international politics, as Louisiana went from Spanish to French to American control. The term "superficial" seems appropriate because at the local level these major political upheavals had little impact. The Valle family of Ste. Genevieve for example, provided commandants for the district under French, Spanish, and American rule. The local power elite remained the same irrespective of who sat in the governor's chair in New Orleans. However, coinciding with the political changes came many others, which were of more important long range consequence.

Prior to 1795 immigrants had been primarily French. After that date they were predominantly American, and by 1804 three-fifths of the population in Louisiana was American. Spanish land grants were distributed about the countryside, and are one of the few remaining visible reminders of the Spanish era in Missouri (Foley 1971:42-44; Gerlach 1976:15-16).

Other changes ensued as more people flowed into Missouri. Mine a Breton became a self-sustaining village, getting its first flour mill in 1799 (Ste. Gen. Archives, folder 380). The village of Old Mines on Old Mines Creek was, according to Austin (1832: 11), re-established in 1802, and soon a road linked these two villages. More people and new settlements in the general project area meant that the problem of hostile Indians had to be resolved. After 1800 the Indian threat generally had disappeared, even though Indians killed a settler on the Mineral Fork in 1801 and attacked Mine a Breton in 1802. This disappearance has been attributed to the coming of the Americans "who regarded shooting Indians as being somewhat akin to squirrel hunting" (Franzwa 1967: 60), but one suspects that it was rather due to alcoholism, disease, and weariness amongst the Indians.

Moses Austin

Moses Austin arrived in Missouri in 1797. Historically, his arrival was significant in a number of ways for both the region and the project area: (1) Austin brought refined mining and smelting techniques with him from Virginia which greatly increased production; (2) he brought a large number of artisans and workers with him, and established a major American mining community which operated year-round; (3) he constructed roads and bridges for the transportation of ores to trade centers on the Mississippi; and (4) he initiated commercial ventures including a mill, a general store, and a shot tower during his first few years at Mine a Breton (Gerlach 1976:18; Houck 1908:368-72; Hanley 1942:129-33; Swartzlow 1935:109-13). In short, modern lead mining and smelting technology came to the Ste. Genevieve District with Moses Austin.

Of the newcomers, Austin clearly had the greatest impact on the lead-mining industry and the lead-mining district. By gaining a large land concession from the Spanish government, having it surveyed, and insisting that it was exclusively his, Austin caused a minor revolution in attitudes about exploitation of the lead ore veins. The old view of the lead-mining district as more or less common property to be exploited by those who happened to be there was replaced by Austin's concept of individual freehold and exclusive rights. This transformation did not take place without a struggle and some violence (Hanley 1942:122-28), and after the American takeover the citizens of Ste. Genevieve petitioned Meriwether Lewis to ask President Jefferson to send a body of troops to Mine a Breton "to prevent an effusion of blood" (Missouri Historical Society Archives, mines envelope). Austin's view, which was more modern and more Anglo-Saxon, inevitably won out.

No potential archeological sites directly associated with Austin were identified within the project area as Austin's activity was essentially centered around Mine a Breton to the south and

west. Despite this, many of his innovations were used at mines in the vicinity of the project area; in fact, for a time Austin's operation did most of the smelting in the region. As a result of Austin's initial success, the flow of Americans increased, drawn to both farm and mineral lands. Several other major deposits were discovered by Austin, and by 1800 several small agricultural communities had been established in the mining district by Americans (Gerlach 1976:18).

The substantial drop in production at Mine a Breton about 1808 was the result of several factors: (1) the number of miners at Mine a Breton was reduced because some workers migrated to areas with newly discovered mines; (2) the War of 1812 depressed trade and production; (3) the panic of 1819 retarded the lead business; (4) delayed collections, fluctuation of lead prices, and difficulties in transporting goods and lead damaged the Austin enterprise; and (5) Austin's tendency to over-invest with money he did not actually have which caused the failure of his mining operation and the eventual loss of the mines to creditors (Austin 1919:243-44; Swartzlow 1935:114).

For a time, Austin was a major force in the Americanization of the region. Many other Americans hoped to establish mining complexes, and many more merely hoped to lay claim to farm and pasture lands. While most of the French occupants of the area remained in their traditional settlements, Americans began to claim most of the surrounding territory and with the exception of Ste. Genevieve, soon dominated the landscape. By 1804, the cultural fabric of the region of which Pine Ford Lake is a part, was dominated by Americans, and the French were the new minority.

The decade 1795-1805 witnessed more change in the Ste. Genevieve District than had occurred since the 1720s, indeed perhaps more than had ever occurred in the region. A rough measure of the rapidity of this change is the comparison of the mines in the area between the Mineral Fork and the Big River in 1795 and 1816, when Josiah Meigs drafted his map of this area. In 1795 there were merely a few scattered diggings around Mine a Breton. By 1816 not only had old mines (such as Mine Renault) been brought back into production, but enough new diggings had been opened so that Meigs could designate 28 different mines for the area (ASP, Public Lands:III). Partly because of global political changes and partly irrespective of these changes in government, a new era had begun for the Ste. Genevieve District in general and for the project area specifically.

Retrocession

The last move in the chess game of European power politics relating to Louisiana occurred in 1801 when Spain, by a secret treaty, ceded all of Louisiana back to France. In the spring of 1803, before France had time to reassume control of the colony, Napoleon I had sold the territory to the United States. There is a certain ironic twist in that, although Louisiana never became Spanish, in essence it did remain Spanish in government even after it had been ceded back to France in 1801.

The retrocession of Louisiana to France reflected Napoleon's desire to expand France's New World Empire. The subsequent transfer of the Louisiana territory to the United States stimulated immigration to Missouri. According to Swartzlow (1935:112), the population of Upper Louisiana doubled between 1804 and 1810.

Whatever causes influenced the movement into Missouri, once begun, the Americanization of the region including the Pine Ford Lake project area could not be prevented; the arrival of Moses Austin in 1798 triggered additional changes which would lead to the rapid decline of the old French cultural system. In addition, the rapid influx of the American population led in short order to demands for Missouri statehood.

Missouri Statehood

According to Violette (1918:117), the nationalities of the 41 members at the Missouri State Constitutional convention were as follows: English, 26; Welsh, 2; Scotch, 2; Irish, 4; Scotch-Irish, 2; French, 2; German, 1. Notice that the constitution was developed predominately by Englishmen who had been in the territory only a few years; the massive Irish and German migration had not yet begun, and the French were limited to only 2 delegates. Furthermore, of these 41 delegates, 33 had been born in slave states, six in free states, and two in foreign countries. They were primarily wealthy, educated businessmen and lawyers; the interests of the farmsteaders and miners were not represented.

During the early years of statehood, two major political factions competed for offices: (1) a relatively small, conservative combination of businessmen, speculators and lawyers centered in St. Louis who were mostly old French leaders and their American allies, and (2) a large group of Americans who had more recently arrived in the region. The two groups were divided primarily over land policy, with the control of the vast unsettled land of Missouri as the prize. The first group wanted the Spanish land grants confirmed, while the second did not. Although two senators soon were elected who had allied with the old French, it was quickly recognized that the real source of political strength for the future lay with the masses. Thus, in a short time the French were abandoned politically, and their last chance to retain some control in the region had passed (McCandless 1972:18).

By 1820, the Americanization of Missouri was nearly complete.

The population was primarily American (over 50,000), and it was generally recognized that the territorial system was no longer appropriate for the administration of the region (McCandless 1972:1-2). The request for statehood came at a time when there were 11 free and 11 slave states. Furthermore, its location west of the Mississippi and at the boundary between north and south, placed additional importance on the slavery issue. French inhabitants, and those early American settlers from the southern states, supported the tradition, while newer Irish and German arrivals from northern states did not. The pro-slavers were the majority however, and general feeling was that the United States Congress did

not have the power to restrict slavery, but rather was obliged to protect the property of the citizens of the territory (McCandless 1972:1-2; Violette 1918:112-13).

Thomas H. Benton, editor of the St. Louis Enquirer, identified (16 June 1819) several pressing problems to be corrected through statehood: (1) the adjustment of Spanish land claims; (2) protection at the frontier; (3) promotion of the fur trade; (4) more efficient operation of the salt springs; (5) sale of all lead mines to private enterprise; and (6) a series of internal improvements connecting the area with the east, the Gulf of Mexico, and the Great Lakes. Soon after acquiring the territory in 1804, the United States government inventoried the lead mines in the region and assumed control of them. Mining grants were given, but ownership was reduced. This strict regulation, the failure of Austin's enterprise, and the decreasing incidence of new surficial deposits, all contributed to a slump in the industry after about 1830.

The Evolution of Settlement and Economic Patterns

Economic and Settlement Patterns

A major focus of our research, requested in the request for proposals, was the collection of locational data for use in archeological survey. For the early years of the American Period, site specific information generally was lacking, but by the end of the Civil War data was fairly substantial. For this reason, model building must be essentially regional in nature prior to 1860, and the specific treatment of American settlement is usually only possible with post-Civil War sites. Still, by thoroughly examining available documents for the pre-Civil War period, we have been able to identify, on a preliminary basis, those trends which were an important part of the cultural, political, economic, and historical development of the project area.

Although lack of sufficient locational data for the early years of the American period in the Pine Ford Lake project area prohibits the development of explicit settlement or economic models, our research suggests significant differences in French and American cultural systems. These differences will be reflected in site location and distribution, site composition, material culture, site frequency within Pine Ford Lake, and site function. Defining similarities and differences between French and American culture in the Pine Ford Lake project area should facilitate development of research strategies designed to locate and assess the significance of historic sites from this period.

The rapidity of American settlement in Missouri between 1787 and 1820 poses several problems: (1) land records are incomplete, inaccurate, and in some cases totally absent, (2) the transition from French to American occupation at some sites may be difficult to sort out, (3) site composition, function, and scope not only changed rapidly, but also varied in a short space of

time, and (4) marked differences in settlement pattern may hamper efforts to sample adequately the cultural resource base. One approach, proposed by Casagrande, et al. (1964:312-13) and discussed by Lewis (1973:93; 1977:151-96; 1980:177-96) calls for the identification of five settlement types which reflect the process of colonization--entrepot, frontier town, nucleated settlements, semi-nucleated settlements, and dispersed settlements. For French sites, only nucleated and dispersed settlements were located near the project area, although none has been documented directly within it. French sites within the project area during the early years of American settlement were probably few, and most likely transitory in nature (e.g. mining). Likewise, no early American sites have been documented for the project area itself, although it is likely that nucleated and dispersed settlements also were present during this time; documentation for sites of these types was found only for the post-Civil War period. Despite the lack of locational data, it is likely that most early American settlements were located within the project area above major flood zones. This would allow access to resources from several environmental zones without danger of flooding. Still, this cannot be known in the absence of documentation and future field survey should cover all environments in the project area so that future testing can address the problem of determining exactly where the first settlements were located.

While the French were limited to a few communities in the region from which seasonal mining was done, Americans quickly scattered about the landscape. American communities also were essentially agricultural, although several became major mining centers. The earlier clusters of American settlements were somewhat similar to existing French communities in that home industry was important, but they were different in that French common fields were included in the urban setting, while American farms were individually owned and scattered peripherally to the community. Later on, American towns, and those taken over by Americans, became commercial centers with surrounding farmsteads. Again, no documentation was found for these early commercial centers within the project area.

It is clear that these American intruders were not assimilated into the French cultural tradition in significant numbers, but rather retained essential American cultural features which were adapted to the new environment. By 1820, remaining French communities were surrounded by American ones, and except for Ste. Genevieve, New Bourbon, and Old Mines, cities and towns in the region had become essentially American.

During the early years of American intrusion, the French continued in the traditional mode of living by occupying nucleated settlements with associated common fields, pasture, and woods. A typical French settlement was described by Brackenridge (1962: 119), a visitor to the region in 1811:

Amongst the Americans, every assemblage of houses, no matter how small a number, is

denominated a "town"; in this country every place except New Orleans, however considerable, or extensive, is called a village. This is right in both cases; the occupation of villages, is principally, the cultivations of the soil. In the states, those who follow the plough, are scattered over the country; while the mechanics, and retailers of merchandise, gather in a cluster. Hence the difference in the appearance of the towns or villages of this country, from those of the states. Although there is something like regularity of streets, and the houses are built in front of them, they do not adjoin, while gardens, orchards and stables, occupy a considerable extent of ground. Each house with its appurtenances, has the appearance of one of our farm-yards. All kinds of cattle, cows, hogs, sheep, mingle with the passengers, in the streets. These tenements are generally enclosed with cedar pickets, placed in the manner of stockades, and sometimes with stone walls. The houses are built in a very singular form, and it is said, copied after the fashion of the West Indies. They do not exceed one story in height, and those of the more wealthy are surrounded with spacious galleries; some only on one side or two sides, while the poorer class are obliged to put up with naked walls, and a poor habitation. These galleries are extremely useful; they render the house cool and agreeable in summer, and afford a pleasant promenade in the heat of the day.

Early French villages had a feudal quality; occupants were cultivators of the soil, hunters, or miners whose work lay outside the settlement. Often, there were no inns, or shops (except those in dwellings), and streets were narrow lanes laid off at angles. French settlements would be expected to be limited and concentrated. Archeologically, one would expect to find evidence of home industry and remains of agricultural activity between dwellings. Houses were usually one story high, vertically-sided structures with porches along one or more sides. Brackenridge (1962:119-20) described domestic architecture as follows:

In building their (French) houses, the logs, instead of being laid horizontally, as ours, are placed in a perpendicular position, the interstices closed with earth or stone, as with us. This constitutes a more durable dwelling and it retains its shape much longer. The roof is extremely broad, extending out with a gradual slope, for the purpose of affording a covering to the gallery.

While French settlements occurred in limited locations, American settlements dotted the landscape. Field investigation

will involve extensive strategy designed to locate, identify, and excavate a sufficient number of dispersed farmsteads as well as the many communities associated with them. Urban sites will have commercial and industrial components not generally found in French villages until they had assumed an American character.

According to Johnson (1950:134).

Where the French village was composed largely of homes, a Catholic church, and one of two gristmills, the American village contained not only homes but commercial establishments, one or more churches, usually Protestant rather than Catholic, blacksmith shops, the offices of the land speculators, and the ever-present saloon.

American architecture at first was limited to log cabins and the logs were laid horizontally rather than vertically. Often two separate cabins had connecting roofs which in effect, formed a single two-room structure. Other features were notched and mortised corners, mud chinking, and shake shingles. As villages grew, more lavish structures (often built of brick) resembled architecture in the east.

In summary, French and American cultures were demonstrably different. The Missouri environment had sufficient resources to support colonization, and although the French had not settled most of the country, transportation and communication routes were available for American use. Until 1804, it might be said that the American intruders did not have the sociocultural and political organization required for colonization. It must be remembered, however, that neither French nor Spanish opposition was sufficient to deny American intrusion, much of Missouri was unoccupied and available for settlement without threatening existing communities, and the American intruders independently banded together to establish functioning communities.

Agriculture was the primary activity for both the French and the Americans (Brackenridge 1962:120), however several differences were apparent. While the French farmed lots in a common field, Americans tended to establish isolated plots away from communities. According to Gerlach (1976:19), three classes of Frenchmen came to Missouri: miners, soldiers, and hunters/fur traders. Very few farmers came, and those who did were ill-prepared to farm the land. A possible explanation for many Frenchmen going into agriculture, beyond the fact that their agricultural needs had to be met, is that the French government granted free land only to those engaged in farming. On the other hand many Americans moving into Missouri brought with them a strong New World agricultural tradition, and hence may have been better able to succeed.

Models and Initial Agricultural Settlement

Agricultural settlement during the 18th and 19th centuries presents problems for model building, but there is at least a fairly substantial body of theoretical material from which to draw.

In order to better understand farmstead and rural dwelling location, John Hudson formed what he called a "theory for rural settlement" (Hudson 1969). Earlier European studies concentrated on the verbal and cartographic classification of settlements, while later works in both Europe and North America employed statistical techniques to describe relations among essentially static point patterns. In contrast, Hudson envisioned a dynamic model which was better adapted to the evolutionary realities of the American frontier settlement process.

Hudson suggested three stages in a typical settlement process: colonization, spread, and competition. During colonization, initial sites are taken up in a frontier zone; such sites may succeed and spread, or fail and be abandoned. While Hudson does not say so explicitly, other writers note that colonization is the most environmentally sensitive stage. Initial colonizers generally have only a very limited ability to alter the natural environment, but at the same time, they may select possible settlement sites from a very wide area. Such a site may not be perceived as the one with the greatest potential for future occupation; however, it usually is seen as being located in the most immediately exploitable environment. Such an environment was not necessarily extensive and frequently was not typical of the general surrounding environment. Examples of such immediately exploitable environments include the salt and fresh water marshes of colonial New England (Russell 1976:30,47), the oak openings and prairie rondes of Michigan (Billington 1967:293), and the timber prairie margin in central Illinois (McManis 1964). There is some debate on the importance of exportable crops and products during this initial stage; some, particularly urban geographers, have regarded it as a subsistence phase while others, including many agricultural historians have seen export as critical even at the earliest settlement period (Russell 1976:30-38; Ward 1971:19-29).

Hudson called his second stage, spread, and suggested that it was characterized by the general filling in of the biotope by settlers. In contrast to colonization, which frequently produced a decline in population density, spread involves both local diffusion from colonized sites and long-range diffusion, usually from sites which are in social contact with colonizing populations.

In Hudson's third stage, competition, the upper limit of the carrying capacity of the environment is approached and checks are placed on further growth. Economically inefficient settlers begin to be eliminated, and land operating units which are too small to successfully compete or too large to permit successful management slowly give way to units which approach an optimum size. Each of the three stages is characterized by a distinct spacing pattern of rural settlements. The most striking change in settlement pattern takes place between the colonization and the spread stages. The colonization stage tends to be environmentally sensitive in order to maximize the return on its very limited resources while the spread stage has much greater potential for altering the environment but must face increased competition for land, and thus becomes very space sensitive. Esarey (1980) has suggested that in

Illinois the transition between the two stages may have taken place between the first and second generation of pioneers.

In southeast Missouri the colonization stage is characterized by a typical concern with environment. In large measure the success of any settling venture was dependent on the accuracy with which those involved in site selection could form an accurate assessment of the immediate return to be expected from a given tract of land. Much of this knowledge, no doubt, was transmitted orally and has been lost, but a substantial amount was written down and from it one can gain an idea of what kinds of environments were regarded as desirable.

The first group of settlers from whom narrative accounts of this site selection process exist were the Americans coming into Missouri during the first quarter of the 19th century. Some chased the elusive "blossom of lead," but most were farmers who chose bottomland as one preferred environmental location. The most widely quoted of the early Missouri travelers, Henry Schoolcraft, attempted to explain the apparent poverty of the area when he wrote:

The traveler can nowhere go into Washington County, keeping to the main roads, without passing over some of the most sterile soils in it. For the sake of getting good roads, they have been carried along the tops of the most sterile flinty ridges, running in the required direction and where one developed too far it has been left and another ascended (1819:52)

Such a traveler, Schoolcraft went on to say, thereby missed the lush river bottoms which were the true agricultural glory of the state. The Big River came in for special praise:

The Big River, in its whole course, which is long and devious, and almost completely subtends the north, east, and south boundaries of Washington County, affords the finest farming lands (1819:52).

The visit on which this impression is based is described in greater detail by the author:

Between Murphy's Settlement and Big River there are no settlements. As you approach the banks of the latter, the lands generally descend and terminate in a very rich river alluvium. Its width is nearly a mile from hill to hill and it is the seat of numerous plantations and well cultivated farms, where large quantities of wheat and corn are raised. A great proportion of the former is floured for exportation and the latter is distilled for the same purposes (1821:90).

Note should be taken of Schoolcraft's mention of exportable products; however, care must be taken in interpreting such a quote. The portion of the big river described is near its confluence with the Merramac. This is evidently the only part of the Big River which the author visited; upstream and throughout much of the area to be impacted the floodplain is considerably narrower. Moreover, an area of bottomland a mile across can hardly have been

the preferred environments for initial agricultural colonization. Narrative accounts can give a general impression of settlement preferences, but most of these accounts are based on impressions of very limited areas. Moreover, authors of early descriptive accounts and immigrant guides copy freely from one another. Land sale records give a general indication of the most desired land, but it is not possible to separate land purchased in hope of finding lead from that entered for agricultural settlement. Early land tracts are often quite large and the local differences in landscape striking; therefore, it is not always clear what land was desired when the purchase was made. Archeology may play a significant role in helping to identify the preferred environments.

Archeological investigation also may be critical in determining the date at which spread became significant; such investigation also may determine to what extent the initially settled environments were abandoned by subsequent generations. It seems fairly clear that the Missouri viewed by Schoolcraft and the government surveyors was still in the colonization phase. Later generations viewed this period as a kind of golden age, replete with legends, and it became the subject of much late 19th century writing. The second generation of settlers has received much less attention and yet, in many respects, this generation probably did more to alter the landscape and lay the foundations for the present settlement pattern than did their parents.

Pre-Civil War Mining

Despite the increase in American immigration after 1787, the mining industry changed little until the arrival of Moses Austin in 1797. Prior to Austin, Americans came into the region primarily to farm, although some mining was done; often the mining operations were established in the vicinity of these early agricultural communities. Mining activity between 1787 and 1797 followed the former French pattern, and the locations of these mines are not well documented. No specific locations were documented for the Pine Ford Lake project area; however, it is likely that several may be found during the survey.

Upon his arrival in the region in 1796-97, Austin wrote:

The 19 I passd the Missisipi on Ice to Ste. Genevieve, which is about 2 Miles from the bank of the River, which at this place is about a Mile over. I presented my letter from the Commandant of St. Louis to Mons Valle, the Commandant of Ste. Genevieve, who received me with much politeness, and promised me all the assistance in his power and on the 21 being furnished with a Carry all and Two Horses I left St. Genevieve in Company with a Mr. Jones of Kaskaskia for the mines of Briton, and on the 23 arrivd at the Place, I found the mines equal to my Expectation in Every respect. the weather turning warm we was obligd to make a quicker return than I wishd however I satisfied myself

as to the Object I had in view, and returned to St. Genevieve, on the 26th. the Mines of Briton, so called in Consequence of there beeing found by a man of that name, are about 30 miles from the Town of St. Genevieve. there is a good waggon road to the place, and all the Lead that had been made at them is makeing a fire over the Ore with large Loggs which Melts some of the Ore, by which means about $\frac{2}{3}$ of Lead is lost. Notwithstanding the imperfect manner in which they melt the Ore, Yet at the Mines of Briton last summer was made 400000 Lead, and from an experiment I made the same quantity of Ore that was made use of, to make 400 Thousand pounds would have made 1200,000lb of Lead, if I was rightly informed as to the quantity of Ore they took to make a 1000lb Lead in the Logg fires. the Ore at the Mines of Briton Covers about 40 acres of Ground and is found with in three feet of the surface of the Earth in great plenty and better quality than any I have ever seen either from the Mines in England or America (Swartzlow 1935:109).

Clearly, Austin was convinced that the mines had great potential, particularly if he were given the authority to run them. In a letter addressed to Lt. Governor Don Zenon Trudeau in March 1797, Governor Baron de Carondelet recommended approval of a grant to Austin for a square league near Azor's claim. In fact, nearly one third of Azor's mine was included in the grant (Barker 1924b:31-34; Houck 1908:367-72).

In 1798, Austin and his family arrived at Mine a Breton to take up permanent residence, and within a short time Austin had erected a saw mill and grist mill; opened a general store; developed a shot factory; opened a road from Mine a Breton to Mine a Renault; erected a reverberatory furnace for smelting ores; began the manufacture of sheet lead and shot; sank the first deep shaft; and attracted large numbers of Americans to his new settlement of Austinville (Houck 1908:368-72; Swartzlow 1935:109-14, 195-205). By 1802 he had captured the smelting business and his settlement was flourishing (Winslow 1894:271).

About this time, many American settlements were established in the region. These were mainly farm-oriented communities but some were centered around mining activities (Houck 1908:372-87). Many of these are discussed in the literature (Houck 1908; Schoolcraft 1972; Winslow 1894), but none can be placed within the Pine Ford Lake project area.

Despite the rapid influx of American settlers and the establishment of permanent mining communities, a substantial amount of mining was still carried out on a seasonal basis. The pattern of abandoning present mines for new discoveries and then abandoning these for still newer ones was prevalent. The Americans, however, were in Missouri to stay, and a substantial population pool east

of the Mississippi supplied the region with a continual flow of settlers. The French, meanwhile, withdrew into their traditional communities and soon were engulfed by the wave of Americans. American settlers came primarily to farm, not to mine, thus in a short time, American communities and expanding transportation and communication networks evolved to support the full spectrum of mining activity in Missouri.

The transfer of the Louisiana territory to the United States stimulated emigration to Missouri. The population of Upper Louisiana doubled in the six-year period from 1804 to 1810, increasing from 10,350 to 19,783. The space between communities decreased and farmsteads were filling the space between settlements rapidly. By the end of the first decade of the 19th century, the Ste. Genevieve district had a population of 4,620, almost 2,000 more than in 1804 (Missouri Gazette 7 March 1811; Swartzlow 1935:112-14). Much of this growth can be attributed to successes in mining; the economic base quickly had become firmly entrenched in a combination of farming/stock raising and mining. Lead was shipped out of state for profit, and it also was sold to manufacturers in the region who produced shot, sheet lead, glass items, and other products (Schoolcraft 1972:134-50).

According to Brackenridge (1962:147-48), who visited the mines in southeastern Missouri in 1811, there were several kinds of lead deposits worked by the miners: large strata of lead several feet thick; large fissures called caves; small fissures called leads or loads; potters ore, referred to as galena; gravel ore or floats; and sparry matter called tiff. All were utilized when found. Most mining was accomplished through the excavation of shallow pits which were usually eight to ten feet in diameter and seldom over eight feet deep; these were worked until the end of the season or until their depths made digging difficult. The only instruments used were picks, wooden shovels, and sledge hammers (Brackenridge 1962:148-49). Despite the initiation of deep-shaft mining by Austin, most mining still was done in the traditional manner as late as 1811. Improvements were adopted more readily in the smelting of lead ore. The log furnace remained in use at various locations throughout this phase; however, the reverberatory furnace introduced by Austin quickly gained popularity. According to Brackenridge (1962:150), the open furnace, the ash furnace, and the air furnace were all introduced after the Americans took possession of the country. None of the mines discussed by Brackenridge were in the project area; most were located south and west of the Big River.

Schoolcraft described Washington County as the "seat of the principal lead mines" (1972:51,65-67). Various mines are mentioned on Iron Mountain, Cedar Creek, and Big River, although their exact locations are not given. In addition to these, Schoolcraft (1972:56-66) discussed Stouts settlement, 5 miles west of Iron Mountain; Mine Renault; Elliot's Mines; Brushy Run and New Diggings, both within two miles of Potosi; Pratts mine, near the Big River 16 miles east of Potosi; and Lebaum's Mine in Richwoods

township. None of these, nor the others listed above, is in the project area.

Describing the mines of Jefferson County, Schoolcraft (1972: 59) wrote:

Lead has been found in several places in this county, it has only been worked at Gray's mine, and McKane's mine, the latter situated on Dry Creek, a stream running into Big River from the Jefferson side. Lead has further been found on the head of Joachim Creek, 18 miles on the road to Potosi; on Col. Hammond's plantation four miles from Herculanum; on the Platten near McCormick's; and on the Joachim near Conner's. Iron ore is found in Big River township, near the ford at Todd's, and on Platten and Sandy Creeks.

Grays Mine was located one or two miles south of Frument (Winslow 1894:272), and McKanes Mine was situated on Dry Creek near the mouth of the Big River (Schoolcraft 1972:80).

Henry R. Schoolcraft's 1819 report still is one of the most informative sources concerning early 19th-century Missouri history. In addition to regional history and descriptions of the natural environment, Schoolcraft discusses the settlement of the region, and provides a detailed report of the mining industry.

By this time, Herculanum--founded by Moses Austin--had captured a considerable portion of the lead market from Ste. Genevieve, and large quantities of lead were being diverted there by Austin. The road which Austin built from the project area to Herculanum, in diverting traffic away from St. Genevieve, had a major impact on local trade and economic networks and was among the most significant changes in the cultural landscape during this period. Herculanum also had the advantage of three shot towers and other works for smelting and casting lead as well as two saw mills, two grist mills, three distilleries, and a tanyard (Schoolcraft 1972:46,48).

Austin's Mine a Breton was still the primary mining community in the region, having three stores, two distilleries (one steam operated), one saw and a post office. It was located near the center of some 40 mines which dotted the landscape, and much of the smelting for many of these was done here by Austin. By 1816, Austin estimated that over 9,360,000 pounds of lead had been extracted from the mine (Schoolcraft 1972:48-49).

Schoolcraft (1972:90) describes the method of working the mines as follows:

The method of raising the ores, and the processes pursued in separating the metal, are, upon the whole, extremely simple. A pick axe and shovel are the only tools in use for removing the earth, and the drill, rammer, and priming rod are added when it

is necessary to blast. Having determined on the spot for digging, the process commences by measuring of a square about 8 feet, and throwing out the earth, spar, gravel, until the miner sinks beneath the depth he can throw the earth. A practised hand will pitch his earth clear out of the pit from a depth of 10, 12, and even 15 feet. At this depth a common windlass and bucket is placed over the centre of the pit, and the digging continued by drawing up the earth, spar, and ores, if any are found, in the manner pursued in sinking a well.

From this passage, it seems that mining methods had changed little since Brackenridge (1962) visited southeastern Missouri in 1811. Methods were essentially the same as those used by the French during the 18th century except for a slight increase in depth, the more frequent use of the windlass, and the use of log and ash furnaces for smelting (Schoolcraft 1972:93-106). Since many claims were reworked several times through the years, depth cannot be used to indicate site age. Furthermore, the presumed paucity of material culture and the absence of subsurface features may make it difficult to identify the date a particular mine was first worked.

Schoolcraft had some difficulty estimating annual production and the number of hands employed because imperfect records, inadequate control over the many small operations throughout the countryside, and imperfections in laws regulating mining made it difficult to arrive at accurate figures. He does indicate that the industry was declining, not because the mines were exhausted, but because of the reluctance to engage in deep shaft mining in order to obtain the principal deposits. Ste. Genevieve and Herculaneum were still the principal towns through which most of the lead was shipped, although Herculaneum was rapidly gaining prominence. Ore (smelted and manufactured) was sent to New Orleans, and then to New York and Philadelphia after being stored temporarily in warehouses and dwelling houses. Schoolcraft's recommendations for increased production included systematic deep mining, better control and recording of claims, and the use of many minerals often found during the search for lead (e.g., zinc) which were still being wasted in great quantities (1972:113-33).

A fairly accurate impression of the free miners living in Jefferson, St. Francois, and Washington Counties may be gained from the 1850 manuscript census schedules. Most (78 percent) were native-born Americans and nearly half (45 percent) had been born in Missouri. Kentucky (10 percent) and Tennessee (5 percent) are also well represented. Half of the foreign-born miners had come from England and more than a fourth came from Ireland; no other country was significantly represented. Washington County had the greatest number of miners and tended to dominate the statistical totals; here the number of native-born Americans was overwhelming.

French surnames were quite common in Washington County, but only one miner listed France as his birthplace. In St. Francois and Jefferson Counties, foreign-born miners (particularly English) were more common, but they still were outnumbered by native-born miners.

In 1850 fewer than one miner in seven owned any real estate. Of those who had property, most listed its value at between 100 and 200 dollars, or approximately the price of a typical working class cottage. Some miners were the sons of propertied farmers; other miners boarded with farmers or tradesmen, but many probably lived in company-owned dwellings. Some of these clusters of company-owned houses are visible on the 1870s plats and are located within the impact area. The excavation of such mining camp sites may yield important information about a relatively undocumented phase of American life.

Most of the 1850 miners told the census taker they could read and write. About one in three were recorded as illiterate, and illiteracy rates may have been somewhat higher among native-born than foreign-born miners. Ages of miners varied from 14 to 80, but the census provides no hint of the extensive use of child labor. Miners were more frequently married than unmarried; wives of foreign-born miners often had been born in the same country as their husbands.

Using the pre-Civil War censuses it is difficult to determine to what extent slaves were used in the mines. Slaves are listed by owner and age; occupation is not recorded nor is any indication given as to whether the slave resided at the same place within the county as the slave owner. Lists of slave owners could be checked against lists of miners, but the extent to which slaves were leased to mine operators cannot be determined from census data. By 1870 a number of blacks were working as miners in some townships which will be impacted by the Pine Ford Lake project.

By the mid-19th century, the lead-mining industry in Missouri had declined; much of the surficial ore had been depleted, and it was not until after the Civil War that substantial technological improvements made deep shaft mining profitable.

Civil War Era

In 1860 Missouri once again was faced with the problem of slavery. Although sympathy lay primarily with the southern slave states from which many Missourians had come, it was generally felt that secession was a last resort (Parrish 1973:3; Violette 1918: 322-34). The organization and planning of Unionists from St. Louis, and the failure of secessionists to recognize the substantial weight of recent anti-slavery arrivals from the north, prevented acceptance of a declaration for secession at a special convention in February of 1861. Not a single avowed secessionist secured election to the convention. By 1860, northern- and foreign-born residents outnumbered southern-born in the state's population, and although only 17 of the 99 members of the convention were not of southern origin, they had to consider the desire of the majority (Parrish 1973:7-8).

Furthermore, the South had little to offer Missouri economically (Parrish 1973:8-9), since the state's economic patterns were slowly shifting. Eastern markets were competing with New Orleans, and rail traffic moved primarily west-east, rather than south down the state's rivers as in the past. Secession would have left Missouri isolated amid Union states and territories, ruined Mississippi River traffic since it was doubtful that the Confederacy could control the watercourse that far north, resulted in the destruction of Missouri's hemp industry because of the Confederacy's free trade policies, harmed rather than protected Missouri's slave property* and prevented the acquisition of needed capital from the east to develop the mineral lands.

Under the leadership of Governor Jackson, Missourians hoped to remain neutral unless the state itself was threatened. Shortly after the secession convention, Jackson received a request from Washington for troops to aid in the fight against the Confederacy. Since most Missourians were not yet ready to join the conflict, particularly against those states from which many had come, the request was ignored. Jackson organized the State Militia for protection of Missouri against Federal invasion and moved to gain control of government arsenals at Liberty and St. Louis. While the capture of Liberty posed no problem, the arsenal at St. Louis proved impossible to capture. Jackson moved 700 troops into the area, but General Lyon, a Unionist, outmaneuvered and outnumbered them with his 7,000 troops and secured the town, the arsenal, and the militia camp (Parrish 1973:11-15; Violette 1918:340-48).

The capture of Camp Jackson at St. Louis created panic in Missouri, and many deserted the Unionist camp. This paved the way for the passage of several military bills proposed by the governor, for the protection of the state, (Parrish 1973:16-18; Violette 1918:348).

During the spring of 1861, secessionists were harassing Union loyalists on the Iron Mountain Railroad at Potosi, and General Harney dispatched troops to end the hostilities and secure the lead works. This military action was not far from the Pine Ford Lake project area (Parrish 1973:17). Within the pool area lies a stone redoubt constructed by Union troops to protect the Missouri Pacific Railroad bridge across the Big River near Blackwell. The fortification (I-J-117) (Documented sites are designated as follows: I for ISU, J, F, W, or SF, for the county; and a number for each site, assigned by county. It was felt that this system would provide control and reduce confusion with existing systems used by other institutions in Missouri), was captured and the bridge subsequently burned in October of 1861 by Confederate General Jeff Thompson (Eschbach and Drummond 1968:87-88).

Although the Harney-Price agreement was designed to achieve a compromise between extremists on both sides, conflicts continued.

*with so much free territory around them the temptation for escape would be irresistible

Governor Jackson may have been attempting to come to terms with the Confederacy secretly, and certainly Unionists at St. Louis felt that the agreement only allowed the opposition to stall for time and prepare for stronger resistance (Parrish 1973:21). By June it was obvious that the Unionists and secessionists could not come to terms, and General Lyon declared war on Jackson and his followers.

Although Civil War military action occurred in Missouri, no documentary evidence was found for specific activities within the the project area. The presence of federal troops, particularly in the area surrounding St. Louis, restricted secessionist activity, and after the Confederate defeat at Pea Ridge in 1862, the state remained primarily in Union control. Subsequent major battles were fought south and west of the St. Francois mining region (Violette 1918:372-73). Skirmishes continued throughout the state, particularly between Union patrols and camps of Missourians preparing to move south. No such battles were documented for the project area, although they may have occurred.

The major troop movement near the project area was the campaign of Confederate General Price in the summer of 1864. The general reached Pilot Knob to the south, and then moved through Washington and Franklin Counties enroute to Jefferson City. From existing documents (Castel 1968:208-21; Shalhope 1971:264-67; Violette 1918:380-86) it does not seem that the troops fought or tarried within the Pine Fork Lake area, but passed just to the west as they moved northward.

In pre-Civil War days, Missouri's free blacks had the right to own property, including slaves, as well as most other civil rights except the right to vote and to hold office. In 1845 a law was passed prohibiting the teaching of literacy to blacks, but by 1870 sentiments favored educating the state's 120,000 blacks so that they might participate as citizens. The number of blacks in the general vicinity of the project area was low; most lived in St. Louis, or in Howard and New Madrid Counties. None of the landowners identified during our research can be positively identified as black, although one would expect to find the remains of slave quarters at several farmsteads within the project area (Parrish 1973:144-54). Although many urban blacks were successful, those freed from the farms could not find work and were forced to return to the countryside.

Settlement and Economic Patterns in the Late Nineteenth Century

During the Civil War years the state of Missouri was (in addition to Union and Confederate operations) subjected to continual depredations by guerrilla bands and militiamen who raided and pillaged the countryside. Much of the population suffered dislocation, particularly in rural areas vulnerable to guerrilla attack; for this reason, postwar plats and maps should be examined cautiously, especially when attempting to develop settlement models

for the project area. As site distributions and ethnic makeups certainly were altered during this period, the effect of the war on the settlement process must be seriously considered. By this time, communication and transportation networks were well established, and environmental considerations were being overridden by economic factors, particularly those concerning the location of railroads and urban centers. It may well be that the random settlement pattern which has been noted for the immediate postwar period is, in part, the result of a combination of factors: interior development, resettlement by displaced Missourians throughout the region, and large-scale immigration.

County maps of the 1870s permit for the first time a fairly comprehensive analysis of the relationship between dwelling, location, and natural environment; however care must be taken in the use of such maps. This is particularly true when any attempt is made to project conditions in the 1870s back into the early years of the century. The population of Jefferson, St. Francois, and Washington Counties had increased almost fivefold between 1830 and 1870 (Table 1), and much of this increase, particularly in the early years, was among rural agricultural people. As noted above, settlement patterns and distributions were also affected by the impact of the Civil War.

TABLE 1
Population by County 1830-1900

Year	Jefferson	St. Francois	Washington
1830 .	2,592	2,366	2,769
1840	4,296	3,211	6,784
1850	6,928	5,313	8,811
1860	10,344	7,249	9,733
1870	15,380	9,742	11,719
1880	18,736	13,822	12,896
1890	22,484	17,347	13,153
1900	25,712	24,091	14,263

Big River Township, as shown in the 1876 atlas of Jefferson County has been selected for detailed examination of the relationship between rural dwelling location and environment. This township is representative of the study area, as it has a substantial amount of bottomland, a good deal of relatively flat upland, and a significant area that was fairly steeply sloping. In 1870 the population of the township was 436, and most people lived in dispersed rural dwellings; clearly, spread had already become a very significant element in the settlement process.

A total of 99 rural dwellings were used in this analysis. A small number of clustered dwellings which were either part of

small hamlets or compact mining camps, have been excluded from the analysis, as have structures which were clearly not residential. Topography was divided into three classes:

1. Bottomland, which is defined as areas adjacent to major streams with less than a 10 percent slope. Most of this area is alluvial floodplain lying along the Big River or Dry Creek, where most of the area is quite flat, and slope values rarely approach the 10-percent limit. The boundaries of this environment usually are clearly defined by sharply sloping valley walls.
2. Flatter Uplands, are defined as areas (not part of major stream valleys) with less than a 10-percent slope. Most of the flatter upland is rolling, relatively undissected inter-fluve, with significantly greater elevation than the major floodplains.
3. This class of land consists of areas where slope is greater than 10 percent and is simply referred to as Slope. Most of this land is transitional between flatter upland and bottomland, and frequently is sharply dissected by major streams and by intermittent creeks which have cut steep-sided secondary valleys. The transition between flatter upland and slope is not always defined clearly.

The 10-percent slope value is a good one for separating terrain classes. Soil formation processes are retarded where slopes are much greater than 10 percent, particularly in forested environments. The amount of rainfall penetrating the soil decreases significantly as slopes exceed 10 percent, and leads to much more severe erosion problems. This is not to suggest that farming was impossible on slopes of more than 10 percent with 19th century technology. Such land frequently was cultivated, and was perhaps easier to farm with animals than it is today with mechanized equipment.

Mapping 1876 rural dwellings against the three classes of environment produced the results shown in Table 2 and Figure 1.

TABLE 2

Farmsteads and Environmental Classes
Big River Township 1876

Percent of Total Area		Percent of Rural Dwellings
Bottomland	17%	25%
Flatter Upland	36%	39%
Slope	47%	36%

The table shows clearly that rural dwellings occurred in significant numbers in each of the three environments. They are somewhat more common on bottomland, and somewhat less common on land where

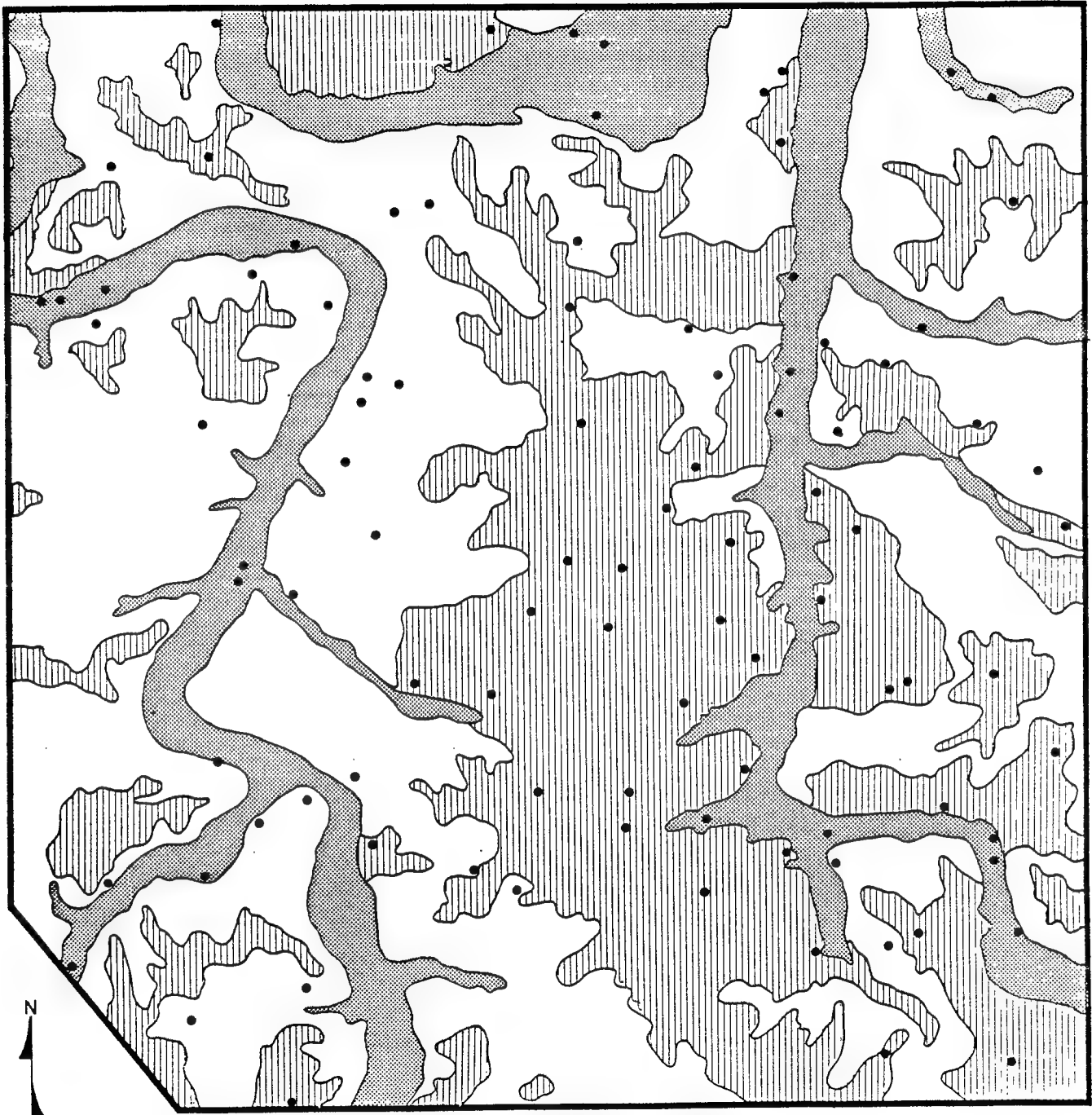


Figure 1.

TOPOGRAPHY AND SETTLEMENT

T40N R3E

1878

0 1
miles

■ Bottomland

▨ Upland (slope less than 10%)

□ Slopes (slope more than 10%)

• Dispersed Residence (villages and mining camps excluded)

the slope is greater than 10 percent. The probability of encountering such a dwelling is indeed somewhat greater on bottomland, but a survey which confined itself to the bottomland would potentially encounter only 25 percent of the total sites. Moreover, there appears to be a substantial chance that such bottomland sites would differ in age and perhaps ethnicity from the total 1876 population.

Proximity to bottomland was perhaps the dominant factor in rural site selection, but a farmstead did not necessarily need to be located in the bottoms to take advantage of that environment. To test this hypothesis, a zone extending 400 meters from the edge of the bottomland into the surrounding upland environment was delimited. This zone was found to include 39 percent of the area and 41 percent of the dwellings. Bottomland and the adjacent 400-meter belt together occupied about 56 percent of the total land area and included 66 percent of the total rural dwellings. Therefore, expanding the definition of bottomland does not significantly increase the probability of encountering an 1876 dwelling.

The 1876 map of Big River Township was compared with a similar map for 1896. Only a few dwellings had been added between the dates and these were scattered among the various environmental classes at different distances from the bottomland. A number of other environmental factors might be used to predict the locations of these dwellings. Such factors as soil types, perennial springs and vegetation covering all may have predictive value (House 1977: 249), but by the mid 1870s the study area had passed far enough beyond the colonization stage that farmstead spacing became more important than environment in determining location.

Without detailed maps of farmstead locations at closely-spaced time intervals, it is difficult to determine when spread and then competition became important factors in southeastern Missouri. Archeologically, spread should be reflected by a substantial number of new dwellings on lands other than those identified as the prime initial environment for colonization or by additional later farmsteads within the initial environment. Competition would be indicated by abandonment of farmsteads in scattered locations without a general abandonment of agricultural land. Geographically, measures of spacing may help to provide answers to these questions.

The competition stage implies that farmstead location should become more regular, as Hudson (1969) has demonstrated in the case of the eastern Iowa farmsteads he studied. Numerous constraints may, of course, act to modify or even reverse this drive toward regularity. In the Missouri study area, a substantial difference in environmental desirability; the presence of distinct ethnic and national groups; and the existence of a substantial source of non-agricultural income from lead mining all may have altered the trend toward regular spacing. Moreover, such a movement takes a considerable amount of time, and any 19th-century map of Missouri probably recorded the area at a relatively immature stage.

Several techniques for measuring regularity in settlement location have been developed. The one employed here is the Near

Near Neighbor Statistic, a technique which generates not only a measure of regularity, but which also provides information on spacing distances. The technique frequently has been employed as a measure of geographic and ecological spacing (cf., Clark & Evans 1954; Dacey 1960b; King 1968). The Near Neighbor Statistic is a ratio between the observed mean distance between a given set of points and the mean distance which might be expected if all points were distributed in a random fashion. A Near Neighbor Value of 1.0 suggests a random distribution. Values between 0 and 1 suggest a clustered (agglomerated) distribution and values between 1 and a theoretical maximum of 2.15 suggest regular distributions. Standard statistical tests may be used to measure the significance of the deviation of the Near Neighbor Statistic from random values. Values which do not differ significantly from 1 traditionally are said to be random, a term which has recently been objected to by those who feel that a random distribution must imply random causality (Getis and Boots 1978:15-16). The term random is used here with the understanding that it has no implication of such causality.

Once again the source map used is from the Jefferson County Atlas of 1876, and the points mapped are rural dwellings which conform to the previously stated standards. The area has been expanded to include four townships, each of which has been divided into four quadrants which may differ slightly in size because urban areas and unmapped parts of the townships have been subtracted from the total area. A Near Neighbor Statistic was computed for each of the quadrants and for the area as a whole. Because the total area comprises a much larger number of points, values not statistically significant for any given quadrant may be statistically significant for the the whole area. Lands that were not part of the township and range system, such as the French and Spanish land grant surveys, have been included in the townships of which they would have been part.

While each quadrant is slightly clustered or regular, table shows that most quadrants have a spacing which is very close to that which would be expected from a random population. In 15 of the 16 quadrants the distance was not significantly different from a random distribution and even in the remaining quadrant the difference is not an extreme one. In none of the quadrants was there the degree of agglomeration to be expected in an area where extreme environmental differences were the controlling factor. Clusters of two or three points are present, but in such quadrants these clusters are balanced by points widely spaced from their nearest neighbor. Densities suggest that an average of three dwelling sites could be found in any given square mile and that such sites would be spaced an average of .3 miles from a similar site. If grouped dwellings characteristic of mining camps had been included in the survey, the pattern in certain quadrants would have been more agglomerated.

Hudson's three stage model appears to be adequate for testing the conditions in southeast Missouri. Such testing must sample

TABLE 3
Spacing of Dwellings in Selected
Areas of Jefferson County 1876

Township	Quadrant	rA	rE	N	D	R	.05 Level
T40N R3E	SW	.374	.376	15	1.76	1.084	No
" "	SE	.304	.306	24	2.67	.993	No
" "	NW	.305	.335	20	2.22	.039	No
" "	NE	.307	.274	30	3.33	1.109	No
T40N R4E	SE	.310	.278	29	3.22	1.114	No
" "	SW	.354	.383	18	2.00	1.082	No
" "	NW	.260	.253	35	3.89	1.026	No
" "	NE	.320	.283	25	2.94	.884	No
T41N R3E	SE	.281	.294	26	2.89	.955	No
" "	SW	.322	.353	18	2.00	.913	No
" "	NW	.275	.283	28	3.11	.971	No
" "	NE	.282	.283	28	3.11	.997	No
T41N R4E	SE	.281	.214	49	5.44	1.020	No
" "	SW	.320	.245	20	2.22	.955	No
" "	NW	.339	.247	23	2.55	1.313	Yes
" "	NE	.276	.246	37	4.11	.895	No
Total Area		.298	.254	425	2.99	1.171	Yes

Note: rA= Mean observed distance to nearest neighbor in miles.
 rE= Expected mean distance to nearest neighbor in miles.
 N= Number of rural dwellings in the quadrant.
 D= Density of rural dwellings per square mile.
 R= Near Neighbor Statistic (rA/rE).
 .05= Deviation from random significant at the .05 level.

enough different environments to determine which, if any, were the favored sites of initial colonization. Testing should also be able to establish approximately when spread into surrounding environments became a significant movement and when, or if, competition became an important factor in creating a more regular spacing of rural dwellings. The model should also be capable of rejecting or modifying Hudson's proposed settlement sequence.

Both Missouri leaders, as well as outsiders interested in the potential for growth and profit in Missouri, recognized that the south was going to lose the war, and by 1863 entrepreneurs were beginning to formulate plans to obtain eastern capital for internal improvements. In addition, much of Missouri was sparsely populated, particularly in the west, and the land was advertised "as one of the richest and healthiest agricultural and pastoral regions on this continent" (Parrish 1973:199). In order to expand the agricultural base of the state, as early as 1865 agents were

sent east to entice German settlers, and to Europe to attract additional homesteaders. These efforts were successful and the population of the state increased approximately 45.6 percent between 1860 and 1870 (Parrish 1973:200-01). However, the Pine Ford Lake project area did not experience the spectacular growth of other areas of the state, and the region remained primarily composed of small agricultural communities interspersed with small mining operations. With the exception of Frumet (I-J-9) and Fletcher (I-J-111), no communities were identified as being entirely within the pool area; all identified sites are farmsteads or small mining areas. Frumet, however, became a fairly large mining operation by the 1870s, containing three mines, mills, a crusher, and several structures including a post office/store. This site may prove to be a significant resource as it is the only site of this type in the project area, and apparently was typical of mining operations in the immediate postwar era. The communities of Tiff (I-W-35) and Blackwell (I-SF-1) are partially in the pool area and the eventual impact will be determined by the actual pool height. All of these communities, where cultural patterning relative to settlement and economic practices are both evident, require additional research at the Phase II and Phase III levels.

The following description of mining procedures found in Rickard (1966:172), is probably typical of operations at works such as Frumet:

Abundance of ore was found in horizontal sheets, 6 to 8 inches thick, at a depth of only 4 to 8 feet. These flat masses of galena were blasted, and then broken with heavy hammers; next the ore was reduced further in a Blake crusher and Cornish rolls, after which the lead mineral was concentrated by the jigging process. The jig was a quaint contraption; it consisted of a heavy log, or 'horse', across which was laid a long pole, having at one end a man astride and at the other a suspended sieve filled with crushed ore to which water was supplied. The perservering up-and-down motion of the man at one end of the pole served to give a similar agitation to the material in the sieve at the other end, so that the heavy particles of galena sank to the bottom and the light particles of gangue rose to the top, to be removed by hand. The concentrate collected at the bottom of the sieve was carried to the furnaces. These were stone ovens with a sloping bottom, reminiscent of the older log-hearths; at one side was a fire-box for wood fuel; and at the front, or lower end, was an opening through which the molten lead ran into an iron pot, from which it was ladled into moulds. Such a furnace when operated by six men would produce 32 pigs, each of 72 pounds, in 24 hours. The operations were too laborious to leave any comfortable margin of profit; the ore did not

average more than 6 per cent of lead, and a day's work at the furnace did not yield more than 2300 pounds of metal worth 5 cents per pound. The mine workings were shallow; in wet weather they were filled with water; in winter, the sleet and ice handicapped the miners; in dry weather, the supply of water was insufficient for the mill; therefore, the season of active work did not exceed six months and only 6000 pigs of lead, or 216 tons, could be produced in the course of a year. The ore, however, was abundant, and that was a factor of prime encouragement. As the diggings were extended underground and shallow drifts were extended they ran into richer ore and at the same time gave the miners better protection from the weather, besides developing a supply of water, which, by aid of pumps and a reservoir, enabled the ore-dressing to proceed less interruptedly. To facilitate the smelting, the sulphur content of the ore was decreased by calcining it previous to reduction.

The late 19th century saw the rise of St. Louis as the major transportation hub in the Midwest; a funnel moving goods, communications, and people from the metropolitan east to the developing west. The completion of Eads Bridge in 1874 signaled its rise to dominance, even over earlier centers such as Chicago. Within the project area, inhabitants were spared the urban problems experienced in St. Louis, including coal-smoke pollution, water contamination, crowding, and epidemics of typhus and cholera. In 1867, 3,500 residents of St. Louis died of cholera and extensive efforts were made to clean up the water supplies, improve the sewage system, and clean the city streets and alleys (Parrish 1973:202-04).

The state's most important industry was still mining, and southeast Missouri was the center of mining activity. Wartime demands for lead and iron resulted in the resurrection of the mining industry, which had begun to stagnate. Ore was obtained from open cuts or shallow drafts, then crushed and jigged in water until the lead sank to the bottom. A reverberatory furnace was used for smelting, while the diamond drill introduced by the St. Joseph Lead Company at Bonne Terre in 1869 increased production and allowed for more efficient working of deposits. With the advent of the railroad, the mining industry boomed, and at first, small operations were run like family plantations. Subsequently, with improved transportation and cheaper labor resulting from increased immigration, such systems broke down. Individual ownership yielded to corporate control, and company towns became characteristic (Parrish 1973:227-28).

Despite the growth of the mining industry, most of Missouri remained predominantly rural. By 1870, the state had a total farm acreage of 21,707,220, with 9,130,615 acres under cultivation. Cultivation of tobacco and hemp declined while the production of corn, oats, and wheat increased dramatically (Parrish 1973:230),

and it is likely that most of the farmsteads noted in the project area were part of this growth. Livestock doubled in numbers between 1860 and 1870, and quantities of draft animals were also raised despite the trend toward mechanization (Parrish 1973:320-31; Violette 1918:445).

After this immediate post-Civil War expansion, the project area seemed to stagnate well into the 20th century. The cultural geographical landscape contains hints of postwar construction and development, but the area never experienced urbanization on a large scale. The decline in population growth after 1880 was due primarily to the fact that most good land had been taken by then, and the population was moving in a westward direction. Immigration slowed, and the scenario was that of an American countryside surrounding several old French communities which had managed to survive. The school system as well as the cultural scheme (in a general sense) remained American, although French enclaves in the project area did retain some traditional lifeways. Substantial changes did not occur until after 1930, and these were not significant in terms of the present research.

Nineteenth Century Transportation Systems

The development of transportation networks in this part of Missouri fits into the framework provided by several recent models. In examining these models, however, it must be remembered that local transportation systems in an area like Pine Ford are subordinate to regional and national systems. Particularly where railroads are concerned, regional and national decisions, rather than local ones, dominate route selection.

Recent regional transportation models may be divided into two classes. Some, such as those devised by Lachene (1965), stress enhancement and improvement of certain existing links between established nodes. Others, such as the studies of Taaffe (1963), stress the penetration of new routes into an undeveloped or partially-developed area. Although Taaffe's model was developed specifically for seacoast locations, it fits the southeastern Missouri situation quite well since the initial function of such routes is usually to facilitate the extraction of high-value resources. The stages of Taaffe's model, simplified and somewhat modified, may be summarized as: initial, penetration, extension, and interconnection.

During Taaffe's first stage (initial), there is only limited penetration into the interior, the value of products exported through any given point is small, and there is little capital for transportation improvement. During the second stage (penetration), various cities attempt to extend their hinterlands by building higher cost transportation links (mainly railroads) into the interior. Often penetration is aimed at tapping some key resource; all cities are not equally successful during this phase.

Despite increased economic development and rapid growth of successful cities, the transportation system focused on any given city remains discrete from that of other cities. During the third phase (extension), feeder routes are extended from the initial lines of penetration in order to tap larger trade areas. This stage is also characterized by the emergence of intermediate centers located along the major route of penetration between the port and the interior. During this stage various cities compete to capture territory, but their transportation networks remain essentially separate from one another. During the final stage (interconnection), the most important nodes of the previously separate networks become connected and the web of transportation begins to function increasingly like a unified system. Some transport systems, however, never evolve beyond the early stages. Taaffe's work was based primarily on the evolution of transportation networks in western Africa, but similar processes have been noted in Brazil (Gauthier 1967), New Zealand (Rimmer 1967), and the eastern United States (Black 1967; Pred 1966).

In Missouri, as elsewhere, early trails were low-investment links that were quickly developed, cheaply maintained, and subject to shifts in location. The costs of changing the route of a primitive trail, particularly in a sparsely settled district, are so small that the road itself is unlikely to be a locational determinant. Kedro (1973:101) for example, suggested that the Three-notch road was causally related to the early development of Missouri; however, it has not been demonstrated that the route chosen for this trail significantly altered any subsequent locational decisions. Presumably there are economic advantages to a location along even so primitive a road. This means that an accurate knowledge of the location of all such routes would have some predictive value for locating previously unknown occupation sites, thus early road surveys certainly should be examined. However, late 19th century atlases examined for this project show that not all houses were located along public roads.

Railroads differ from primitive routes in several important ways. They are high-investment links and therefore can be constructed only between the most important nodes. Once built, their location tends to remain fixed. The economic advantages to a location along such routes are considerable and are strong enough, for example, to warrant the shift of specific activities or even complete towns to railroad locations and to admit the creation of many new towns along their routes (Walters 1977, Wheeler and Hager 1971). Moreover, Lachene (1965) has pointed out such routes are often built with capacities in excess of potential traffic at the date of construction, which means that the marginal costs of increasing movement remain low for an extended period of time. Such routes exert a powerfully coercive influence on subsequent locational patterns.

In southeastern Missouri, Taaffe's penetration phase is distinct, and it is evident that, in order to push their way into the mineral region, the earliest railroads were focused on extractive

activities. St. Louis clearly sought to enhance its position by tapping a larger hinterland, as seen in the language of the 1836 convention to promote Missouri railroads. In the words of the convention regarding a route to the southwest:

It is now expedient to adopt measures for the construction of a railroad from....St. Louis in a southwestern direction so as to traverse the rich mineral region in that part of the state, with a view to its indefinite extension in that direction when and as far as the public interest may require (Willis 1933:4).

Note that no southern terminus of the road is specified. Again, on 25 January 1837, when the General Assembly authorized the St. Louis and Bellview Railroad for its route to run from St. Louis to Potosi and possibly then to Caledonia, no point further south or west was mentioned (Willis 1933:6). The route survey of 1839 was predicated on the assumption that more weight of cargo would move toward St. Louis than away from it. Construction on the railroad was begun in 1853, and after many delays the first train chugged into Iron Mountain on 25 May 1858. Not until after the Civil War was this initial route of penetration extended to link with other lines.

Other Mississippi River ports attempted to establish their own routes of penetration into the mineral region. Ste. Genevieve managed to arouse a good deal of excitement about a railroad reaching inland from that city, and it was surveyed in 1869, but never completed (Willis 1933:141). A similar railroad reaching inland from St. Mary's landing on the Mississippi River never got beyond the survey stage. Once the dominance of St. Louis had been established, it was never again challenged in its role as gateway for the mineral region.

The later stages of Taaffe's model are, in Missouri, poorly defined and compressed. Feeder routes were constructed to extend the trade area of the Iron Mountain Railroad, and the short 3.5-mile route to Potosi was begun in 1858. In 1880, the St. Joseph Lead Company and the Desloge Lead Company laid a narrow track to the same trunk line from Bonne Terre in St. Francois County; this line was taken up after only ten years service. In addition to these feeder routes, several interconnecting routes including the Belmont Branch of the Iron Mountain, the Mississippi River and Bonne Terre, and the Arkansas Branch of the Iron Mountain all were in service by 1890 (Willis 1933:129).

Archeologically identifiable patterns associated with the railroads include a large number of new towns founded along the individual railroads at the time of their establishment; an increase in the number of artifacts made outside the Southeast Missouri area; temporary construction camps along the routes of the railroads; and a zone within a few miles of the railroad routes where stores, churches, taverns, blacksmith shops and similar low-level urban activity sites were abandoned in favor of new sites along the tracks.

The location of urban places is the subject of an extensive body of theory and method known collectively as Central Place Theory. In its earliest form this theory, as developed by Walter Christaller (1966) and his followers, concentrated on the interpretation of a temporally static spatial system which was characterized by a series of activities (functions) arranged in a predictable hierarchy of central places. Such a hierarchy, if viewed over a large enough area, has a consistent and fairly predictable series of geographic patterns.

Recent work, much of it in North America, has attempted to adjust Central Place Theory to better fit the temporally evolving city systems of the New World, and two schools of thought have emerged. One stresses the subsistence nature of the frontier environment and argues that urbanization in such an economy begins with export and supply towns which possess rudimentary linkage to external markets; such theories stress the external nature of the initial stimulus for urbanization and the importance of exported products to the development of the system (Careless 1954; Rubin 1967). Alternate theories, particularly those of Smolensky and Ratejczak (1965) argue the advantages of division of labor and specialization-stimulated local urban growth before the development of a significant amount of interregional trade; such theories tend to stress the importance of internal development and local trade in the development of the urban system.

Other important contributions to evolutionary Central Place Theory have come from C.F. Whebell (1969), who incorporates the natural landscape into his Corridor Hypothesis by arguing that certain natural routes of lower transportation cost have led to the development of essentially linear systems of cities. Whebell's corridors are characterized by rapid economic development and by a concentration of bundles of transportation routes which establish the initial superiority of the corridor and maintain this superiority through time.

The basic elements of central place theory as developed by the above authors provide a useful predictive framework which can be applied to southeastern Missouri. Specific central place location would, of course, be somewhat modified by the irregular topography and by the presence of some communities dependent directly upon mining. In general, the statistical predictive power of Central Place models increases with the size of the geographic area involved.

A very preliminary explanation for the observed pattern of urban development in southeastern Missouri might involve three kinds of locational orientation. The first would involve cities like Ste. Genevieve, Herculaneum, Caledonia, Potosi, and Bonne Terre whose locations were primarily determined by proximity to exploitable bodies of ore and on facilities for processing and shipping this ore. Such a system resemble the early stages of Whebell's model. The second orientation would involve places like Hillsboro, Farmington, and many smaller service centers which developed to serve an increasing agricultural population. Their

location and hierarchical arrangement would conform to those suggested by Central Place Theory, and they would exhibit similarities in pattern to the urban systems developed in areas of similar topography and population density throughout the central United States. The third orientation, tied to the distribution of railroads, would involve a central place system distorted by an unequal transportation network. The single most concentrated period of the founding of towns in Jefferson, St. Francois, and Washington counties came with the establishment of the railroad. Among the towns founded in this period were DeSoto (1857), Mineral Point (1857), Irondale (1858), Kimmswick (1859), Winsor Harbor (1859), Hopedale (1859), Sulphur Springs (1860), Pevely (1860), Demaree (House Springs) (1860), and Hematite (1861).

The above-mentioned orientations might be mixed or might change with time. For example a town like Potosi, initially developed to serve a mining population and located largely with respect to geological determinates, could, and did, evolve into a regional trade and service center as well as a mining and smelting center. Initial railroad location was largely governed by the presence of raw materials, but as has been seen, this location, once selected, produced major locational shifts in activities unrelated to mining.

Figures 2 and 3 give some idea of the central place system as it existed in southeastern Missouri during the 1870s. Figure 2 shows the relationship between towns and topography; Figure 3, based on the nearest larger neighbor technique, shows the same places as they might have been functionally related. Figure 3 also demonstrates, in a simplified way, the kinds of trade connections which might have been expected to exist. Such a map could be transformed to take into account variables such as time of travel or freight costs along routes of easier transportation. The map does suggest that the Pine Ford Reservoir may be located along a dividing line between two fairly discrete urban systems.

Something should be said regarding town morphology in the area, since Johnson (1950) has suggested that the plans of American villages were largely irregular.

The American Village with its haphazard layout and heterogeneous architecture offered a striking contrast to the mathematical precision and attractive architecture of the older French villages. The typical street in an American village was unpaved, not always straight, and narrow. Cross streets came at irregular intervals and the general appearance indicated a lack of planning (1950:134).

A preliminary examination of available town plats suggest that the above statement is inaccurate. The typical southeastern Missouri town of the American period was designed much like other towns throughout the South and Midwest, that is, a grid pattern of streets crossing at regular intervals. The streets were designed to be straight and were reasonably wide. Figure 4 shows an example of a typical town plan. Perhaps in the very early years,

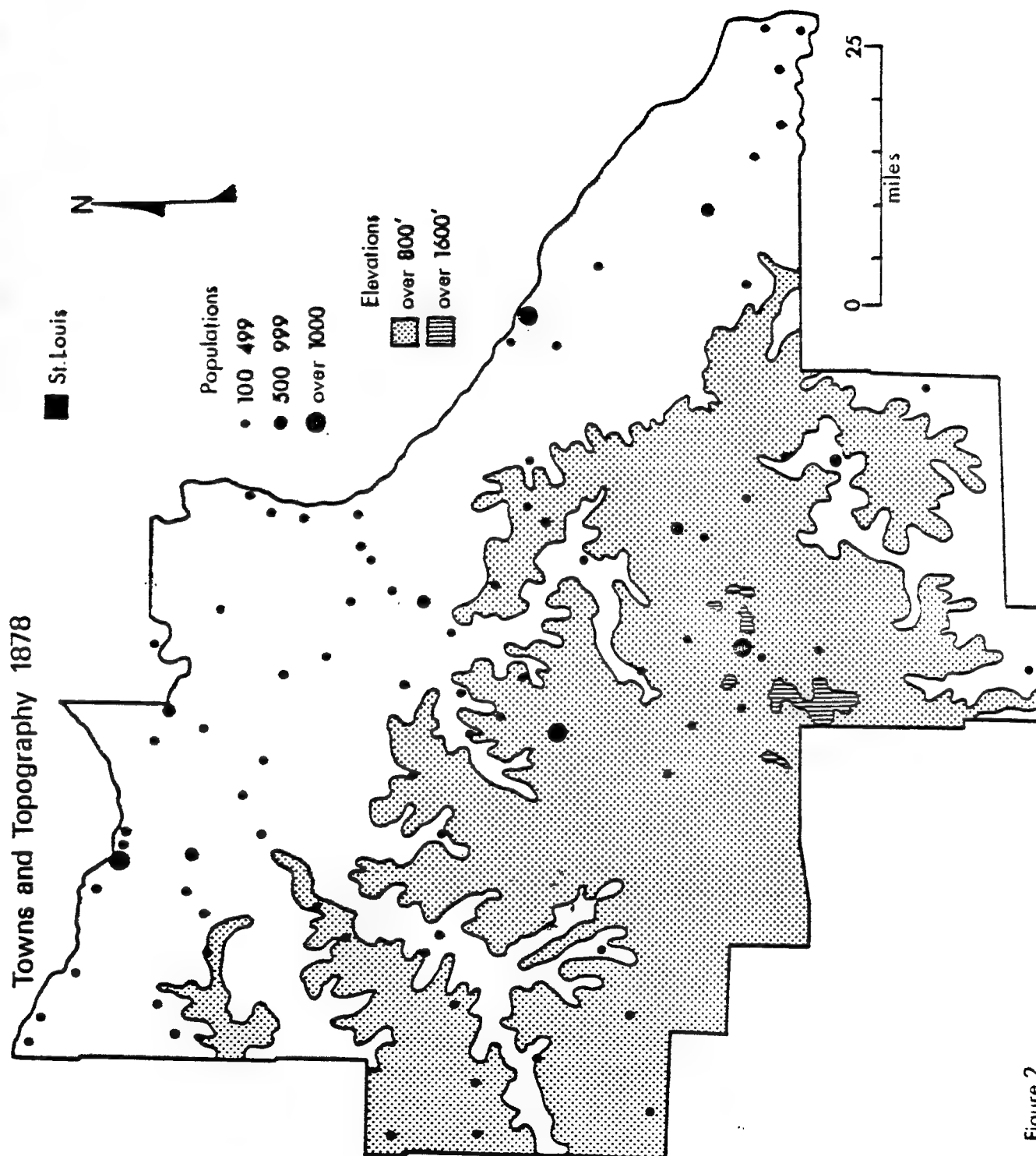


Figure 2.

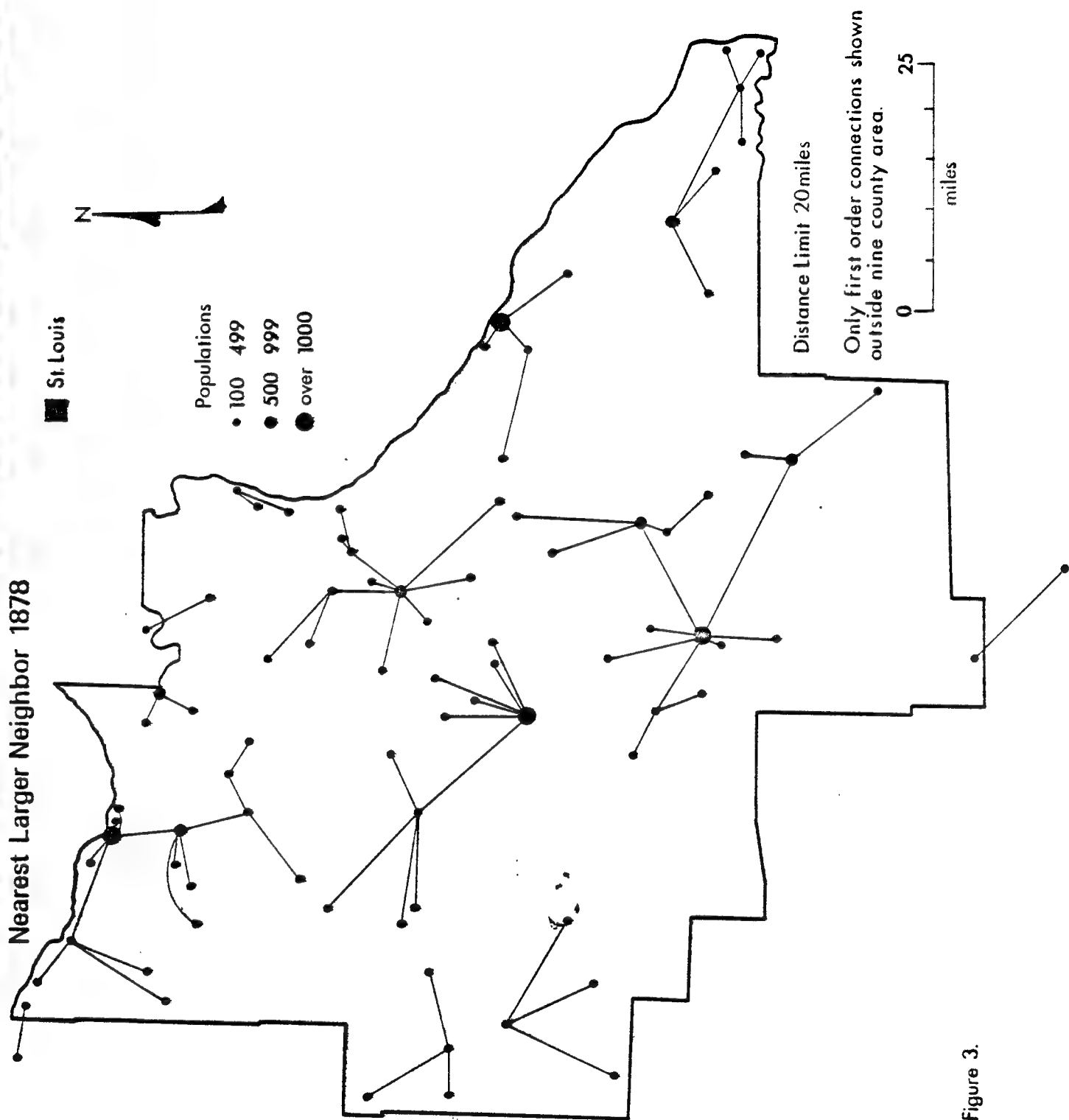


Figure 3.

or in areas with extremely irregular topography, the plan may have been ignored but, if for no other reason than avoiding legal complications, the surveyed grid appears to have been followed in most towns.

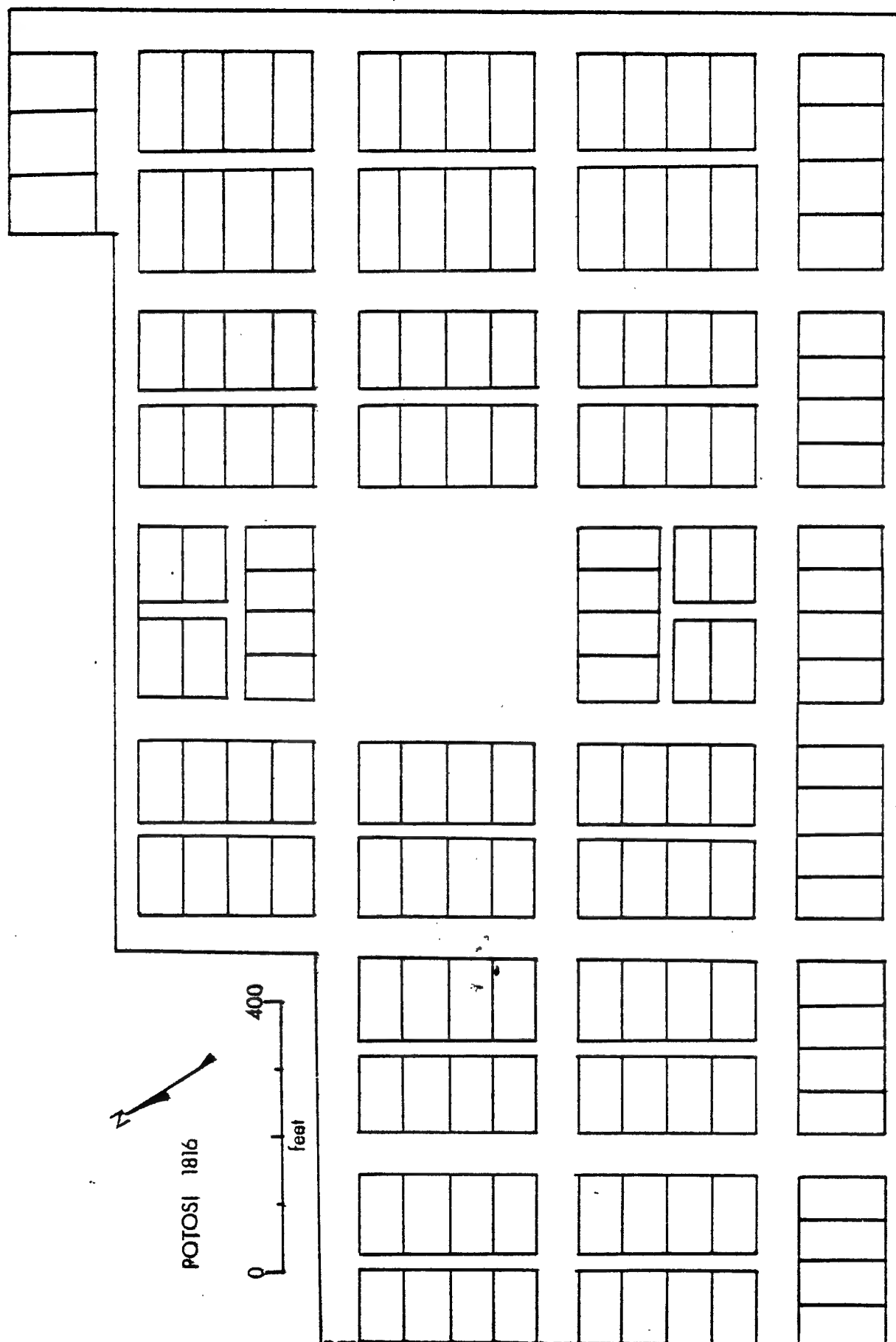


Figure 4.

THE TWENTIETH CENTURY

The cultural geographical and historical fabric of the project area during the 20th century was not markedly different from that of the 19th century. Although technologies improved, the ethnic composition of the local population, the basic settlement pattern, and the local economy remained essentially unchanged. Developments after this date are beyond the scope of this study, and are not addressed.

For the most part, the Pine Ford Lake project area falls within the Tiff Belt Subregion defined by Johnson (1950:153). During the latter half of the 19th century, the St. Joseph Mining Company dominated the entire St. Francois mining region (Johnson 1950:165). Technical improvements and the discovery of additional lead deposits stimulated production, and shaft houses, concentrators, chat piles, furnaces (Flintshire and Blast), and large-scale mining camps soon dotted the countryside (Johnson 1950:163). The exception to this development was the Tiff Belt, which, even as late as 1930, was the least urbanized of the five mining subregions. According to Johnson (1950:173), the switch from lead mining to tiff mining occurred about 1874 in the project area. Strip mining soon became popular; although deforestation did not occur to fuel furnaces, it did result from the removal of all materials above the tiff. This resulted in the creation of numerous plots of barren land, devoid of soil or vegetation.

Tiff mining could be done by hand, using a pick to chop out pieces of ore and a windlass to haul the ore to the surface. Mining by hand continued during the 20th century, although mechanized strip mining predominated in terms of production and effect on the landscape. The Pine Ford Lake project region was characterized by small mining communities such as Mineral Point, Fletcher, Cadet, Old Mines, and Palmer which had based their economies on the mining of tiff, rather than on ranching and farming as is common to other Ozark communities (Johnson 1950:178-81). Johnson believes that these communities are neither rural nor urban, but rather fall somewhere in between. As Thomas suggests (1979:1-4), the population remained primarily French, close-knit, and continued to emphasize the mining of tiff until 1930. While tiff mining has been replaced by activities more commonly associated with 20th-century urban development, the project area has stagnated with respect to population density and modernization in comparison with neighboring urban centers such as Potosi and DeSoto. Although the period from 1895 to 1919 was the major boom period for small town, village, and hamlet life in Missouri, this boom did not have a major impact within the Pine Ford Lake flood zone. Additional roads were built, and some new construction occurred, but these changes were minor prior to 1930.

By the 20th century, the project area suffered a decline in population because most of the good land had been taken; prime

settlement locations were at a premium within the flood zone for the Pine Ford Lake project. By 1900, the scenario was that of an American countryside surrounding several old French communities which had managed to survive (i.e., Old Mines). The school system as well as the cultural scheme (in a general sense) remained American, although French enclaves in the project area retained some traditional lifeways. French culture in the project area currently is being reinforced, partially due to the efforts of Rosemary Hyde Thomas and the Rural Parish Workers. Folk dancing, singing, and language studies in recent years have revived many traditional French customs.

The towns of Blackwell, Frument, Fletcher, and Tiff will be endangered by the proposed flooding; thus, it is crucial that further research address the problem of determining the nature and extent of their socio-economic, technological, and historical development during the 20th century.

THE EVOLUTION OF SETTLEMENT AND ECONOMIC PATTERNS: SUMMARY AND MODELS

Models, other than those at the most general level, must have some solid data upon which they are based. For the post-Civil War period in the Pine Ford Lake area, we feel we have found at least 90 percent of the sites from that period through the historical research. Settlement patterns for that period, and the occurrence of undocumented sites such as those reported by the University of Missouri survey, will conform to those locational criteria outlined in Figure 7 and reflect the locational criteria outlined by Walters, pages 50-55.

For the French, Spanish, and pre-Civil War periods the specific locational data were either nonexistent, not in the archival sources we assessed, or not complete enough to produce an actual model. However, schematic models reflecting economic considerations and availability of common denominators such as suitable land for cultivation and potable water are presented as a guide for future research in the area. The patterns of houses and other cultural features shown in the models indicate the potential for archeological testing for other components of the pattern when only part of the pattern has been identified. However, only through field checks and correlation with archeological data can we be sure these generalized schemes have a predictive value.

Figure 5 is an idealized scheme of French settlement patterns that remains to be tested by actual field survey. Figures 6 and 7 represent idealized Big River landscapes as they would have appeared about 1820 and 1870. In addition to bottomland and wooded upland, the range of environmental types shown includes upland prairie and barrens. Although these two types are not found in the area which will be impacted by the Pine Ford Lake project, they are typical of the overall south-eastern Missouri landscape. The figures are designed to show the locations of representative cultural features; however, the placement of these locations on the maps is not an actual indication of their relative frequencies or the distances between them.

Figure 6 shows a portion of the project area during the early 19th century at about the time of the first government surveys. Farmsteads at that time were scattered, with each being the focus of a small tract of cleared land. Farmsteads were found throughout a considerable range of farmable environments; however, bottomland and prairie margins were preferred while barrens with thin soil and exposed bedrock generally were avoided. While some of these farmsteads may have been remnants of the French period, most were established during the early American period. A few small nucleated settlements also would have been present, and these too may have retained elements of the earlier French period. The countryside was traversed by a low density network of primarily unimproved roads that tended to follow low gradient routes.

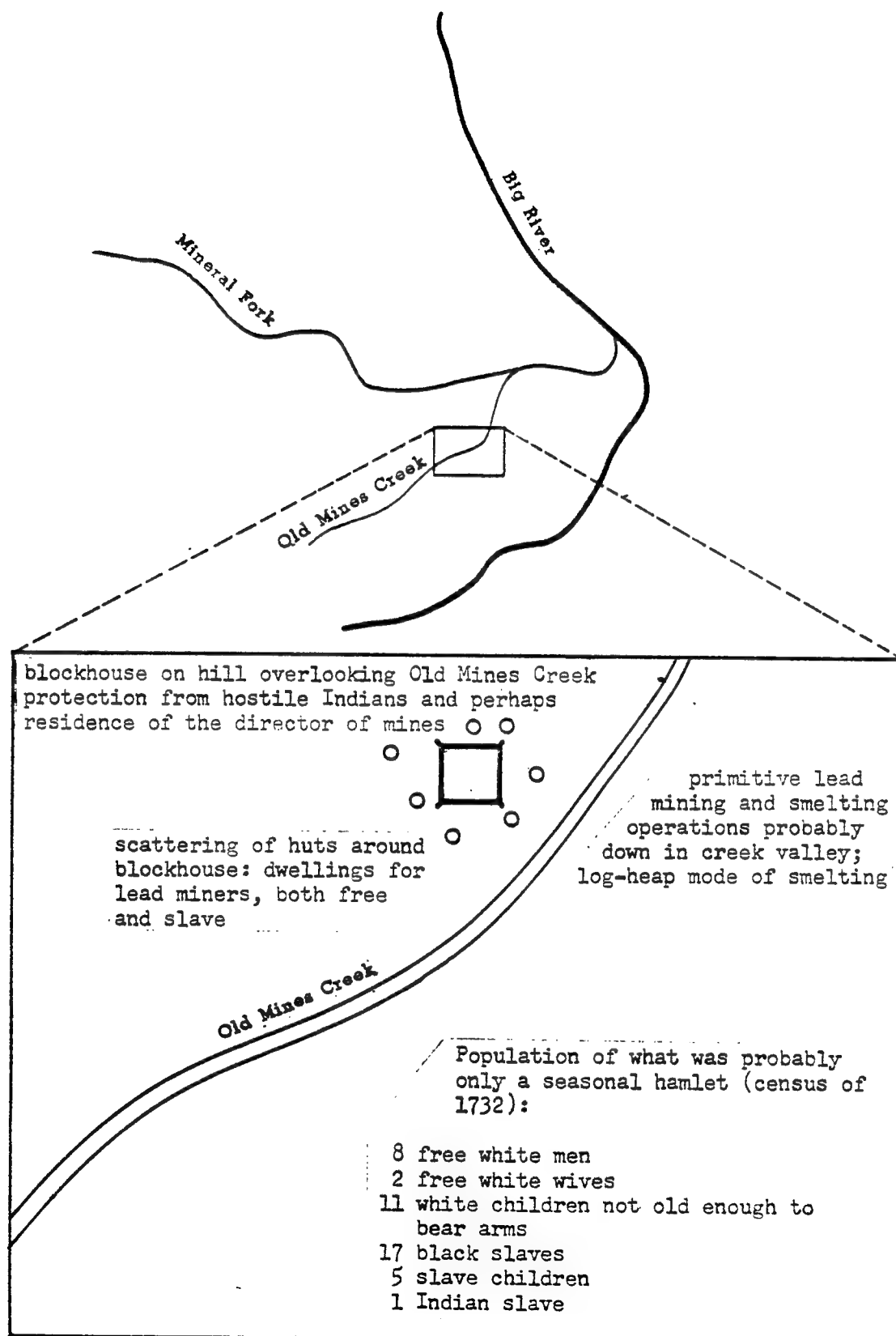


Figure 5. Idealized 1730s French lead mining pattern, Big River area.

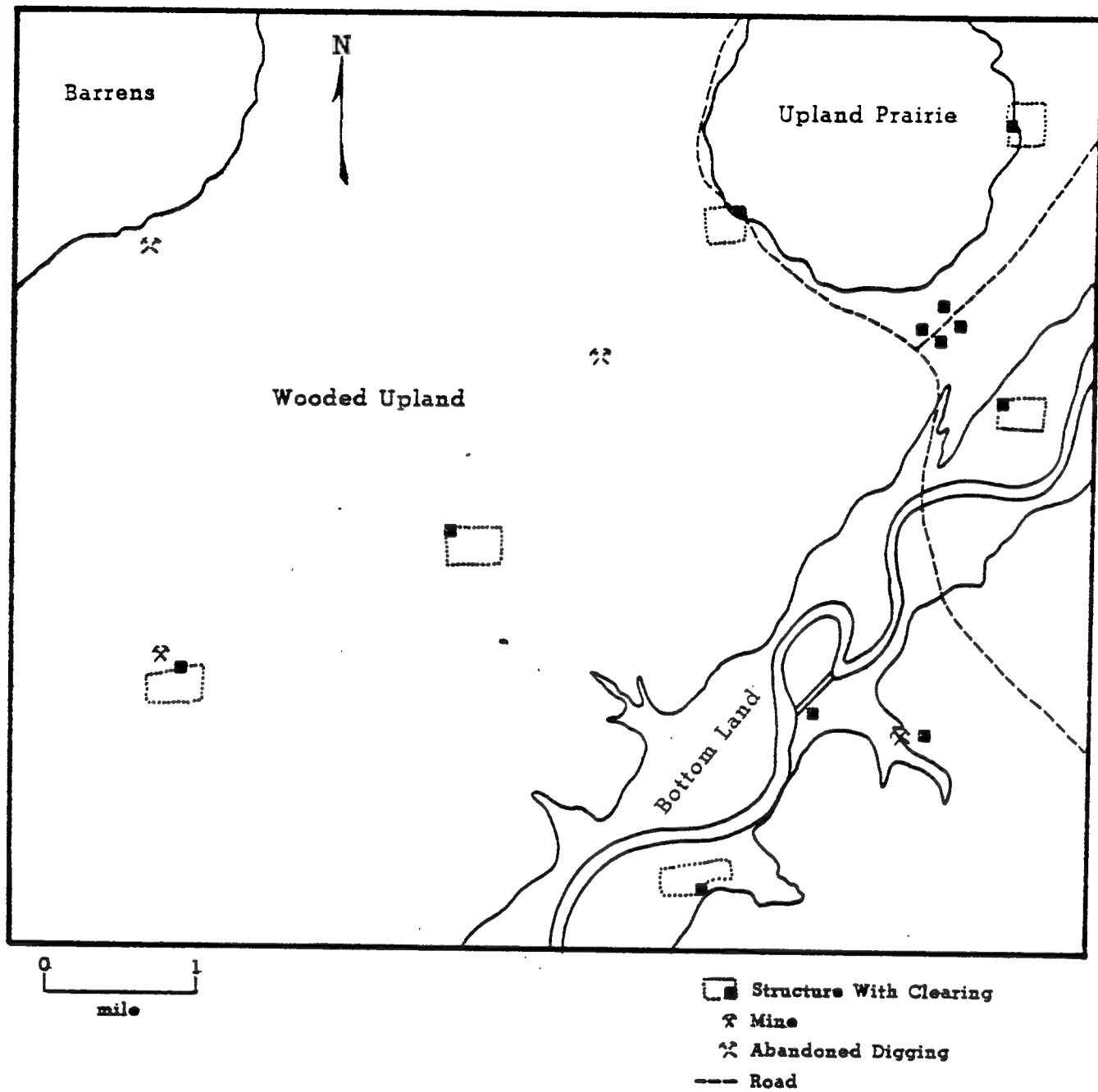


Figure 6. Big River, typical 1820s landscape.

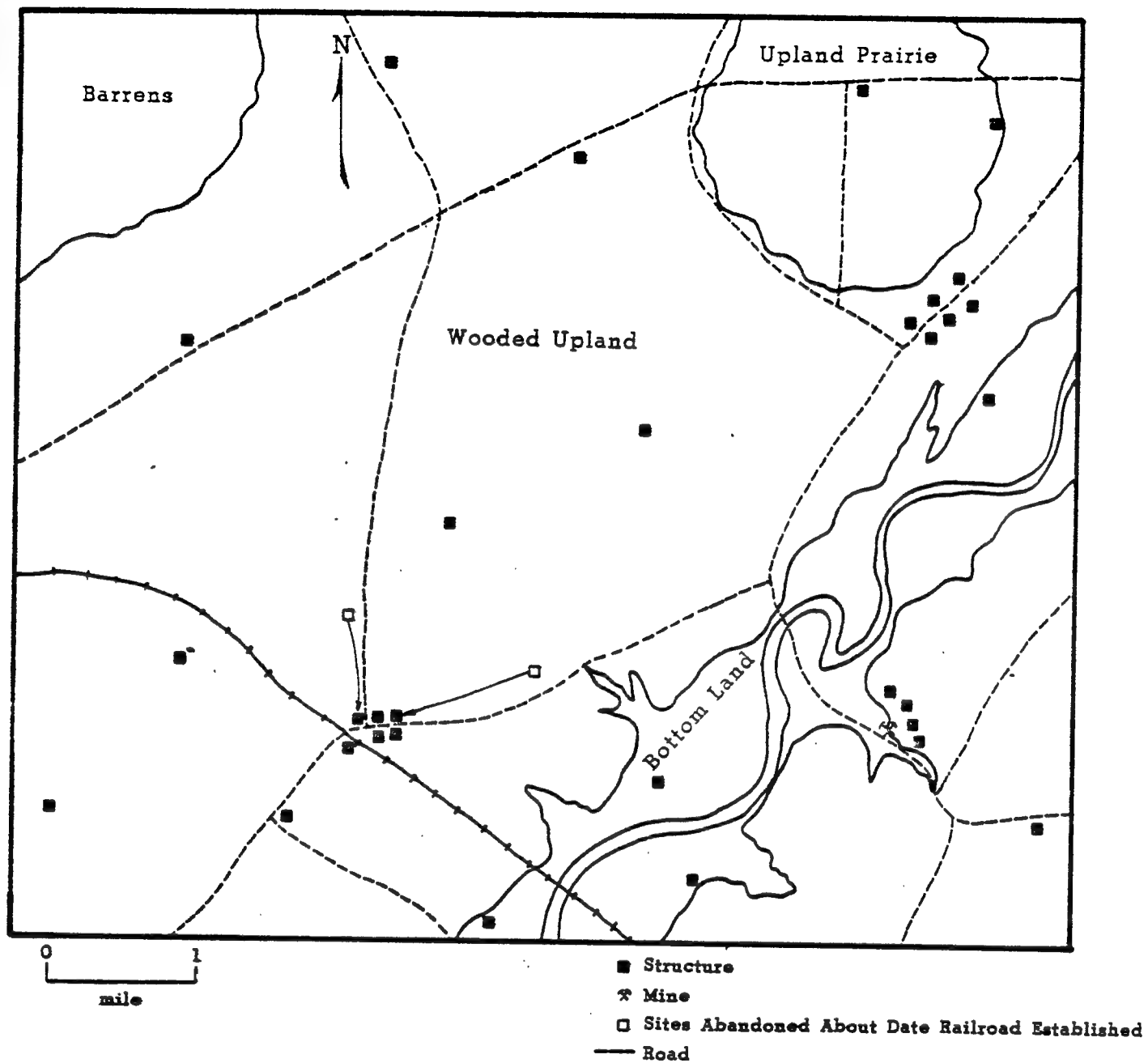


Figure 7. Big River, typical 1870s landscape.

Many, but not all, of the early farmsteads and small settlements were situated along these roads.

Other cultural features found during this early period were mills and mines. Mills would have been located along the river, and an example of a mill is shown on the figure with its head race cutting a meander neck. Mines were dominant features of the landscape during the early 19th century; many still were operating, but others had been abandoned by this time. Some surface mines continued to be worked into the mid-20th century. Some mines had associated structures (furnaces, crushers, etc.) near them.

Figure 7 shows the same area about 1870. By this time, farmstead density was much greater and most agriculturally acceptable areas had been at least partially cleared, although the barrens still were mostly avoided. There was a considerable variation in the size of the farmsteads and in the distances between them. Some farmstead were located at the sites of the earlier farmsteads (Figure 6), but most were established after 1820.

In 1870 the road density was considerably greater than in 1820. Even though much of the government survey work had been completed by this time, roads generally did not follow township and range lines. Many farmsteads had sprung up along these new routes, but a good number of them still were not reachable by public roads.

Nucleated settlements at this time were increasing both in number and in urban functions. As was the case with the individual farmsteads, most settlements had come into existence after 1820, but those surviving from the early 19th century may have retained at least a portion of their French or early American flavor. Three types of nucleated settlements were flourishing by this time and are indicated on Figure 7. The first type, railroad towns, would have been established in the 1850s when the railroads were constructed. Residences and commercial and civic functions began to gather in these towns. Mining settlements comprised the second type. These mining-oriented communities were not always situated along a railroad and they were distinguished from the other two types by the presence of company-owned housing and ore-processing facilities. Many isolated mining sites (both active and abandoned) would have been present in 1870, but these are not indicated on Figure 7. The third type was crossroads settlements. These flourishing communities were oriented neither towards mining or railroad functions. All three settlement types served as low-order central places which serviced limited areas of the surrounding countryside.

RECOMMENDATIONS

The following recommendations regarding future research in the project area derive from the results of the initial documentary and archival research conducted. Approximate time and cost figures are attached to these recommendations, although they should be considered only as general estimates, since the time at which future research might be conducted is totally unknown.

1) Persons familiar with the archival research should visit the project area for on-site inspection of some of the historic sites. This will provide maximum integration of archival and field data, a need reflected in part by the fact that the survey crew was unable to locate any vestiges of some structures identified in the documentary search.

2) Additional research should be carried out for site-specific information for the French and Spanish periods. Sources available at this time were generally not site-specific for these periods, and locational data will, it appears, only be reconstructed through a combination of on-the-ground survey for descriptive reference points, and more detailed documentary analysis.

Further archival research is recommended in the following locations: Government Land Office records (Rolla, Mo.); Bexar Archives (University of Texas-Austin); Cabildo Archives (New Orleans, La.); Randolph County (Illinois) courthouse records; Ste. Genevieve (Mo.) census and other records; and various archives (principally in Paris).

Before the Ste. Genevieve archives can be successfully exploited, determined efforts will have to be made to assure scholarly access to the original records. Some of the microfilms are of poor quality, reading facilities are very limited in Ste. Genevieve, and not all relevant materials were copied. In addition, it has become clear that the Illinois side of the Mississippi River played an important role in the development of the Pine Ford Lake area. More attention should be given to Illinois-based archival resources than has been possible.

Research in Paris, New Orleans, and Austin represent sources outside the immediate project area that may be somewhat costly to exploit, but which may be the only significant sources of data for the French and Spanish periods. The Cabildo records in New Orleans also have the limitation of presently being closed, and re-opening for general scholarly use is projected at about three years from the submittal of this report.

3) To maximize returns from future historic research in the area, documentary research and field survey should be incorporated under a single research design, or at minimum should be conducted simultaneously to allow coordination between the efforts of both

avenues of investigation. Upon the location of sites in the field, the early Population Schedules of the Censuses of the United States should be consulted. Information regarding the occupants of a specific site, their work, probable sources of income, etc., could be learned.

Time and Cost estimates for implementing these recommendations are as follows, based on October 1980 prices:

Recommendation 1 (On-site inspection of historic sites)

Research Archeologist	
1 month in the field @ \$2000/mo.....	\$ 2000.00
2 weeks report preparation at 1/2 time....	500.00
Researcher-Historical Archeologist	
1 month in the field @ \$1500/mo.....	1500.00
2 weeks report preparation, full time.....	750.00
Fringe Benefits (21%)....	997.50
Indirect Costs (43.7%)...	2075.75
Expendable Supplies	75.00
Travel	
Car rental @ \$10.00/day for 25 days.....	250.00
Mileage Charge of .22/mile for 3000 miles....	660.00
Lodging for 25 nights @ \$20.00/night for 2...	750.00
Per Diem: 50 person days @ \$17.00/day.....	850.00
Contractual Services (toll calls, xeroxing, etc.)	150.00
Final Report Preparation (editing, printing, reproduction costs, graphics, etc.)	850.00
Total Project Costs	<u>\$11408.25</u>

Recommendation 2 (Further Archival Research)

Site 1: Government Land Office Records (Rolla, Mo.)

Historical Geographer	
Full time for 1 week @ \$2200/mo.....	\$ 550.00
1 week report preparation, full time.....	550.00
Research Assistant	
Full time for 1 week @ \$1000/mo.....	250.00
Fringe Benefits (21%)	336.00
Indirect Costs (43.7%)	699.20
Expendable Supplies	75.00

Site 1 (continued)

Travel	
Car rental @ \$10.00/day for 5 days.....	50.00
Mileage charge of .22/mile for 800 miles...	176.00
Lodging for 5 nights @ \$20.00/night for 2..	200.00
Per Diem: 10 person days @ \$17.00/day.....	170.00
Contractual Services.....	100.00
Final Report Preparation	450.00
Total Project Cost	\$3856.00

Site 2: Bexar Archives (University of Texas-Austin)

Historian	
Full time for 1 week @ \$2300/mo.....	575.00
1 week report preparation, full time.....	575.00
Research Assistant	
Full time for 1 week @ \$1000/mo.....	250.00
1 week report preparation, full time.....	250.00
Fringe Benefits (21%)	346.00
Indirect Costs (43.7%)	721.00
Expendable Supplies	75.00
Travel	
Amtrak, Bloomington--Chicago, round trip for two persons @ \$24.00	48.00
Round trip, Coach airfare, Chicago-Austin for two persons @ \$338.00	776.00
In town transportation (car rental for five days @ \$30.00/day	150.00
Lodging for 5 nights @ \$25.00/night for 2..	250.00
Per Diem: 10 person days @ \$17.00/day.....	170.00
Contractual Services	100.00
Final Report Preparation	850.00
Total Project Cost	<u>\$5136.55</u>

Site 3: Cabildo Archives (New Orleans, La.)

Historian	
Full time for 3 weeks @ \$2300/mo.....	\$1725.00
2 weeks report preparation, 1/2 time...	575.00
Research Assistant	
Full time for 3 weeks @ \$1000/mo.....	750.00
2 weeks report preparation, full time..	500.00
Fringe Benefits (21%)	745.50
Indirect Costs (43.7%)	1551.35
Expendable Supplies	75.00
Travel	
Amtrak, Bloomington-Chicago, round trip for two persons @ \$24.00	48.00
Round trip, Coach airfare, Chicago-New Orleans for two @ \$306.00	612.00
In town transportation (car rental for 20 days @ \$30.00/day	600.00
Lodging for 19 nights @ \$35.00/night for two persons	1330.00
Per Diem: 40 person days @ \$17.00/day	680.00
Contractual Services	150.00
Final Report Preparation	650.00
Total Project Cost	<u>\$9991.85</u>

Site 4: Randolph County Courthouse Records (Illinois)

Historian	
Full time for 1 week @ \$2300/mo.....\$	575.00
1 week report preparation, 1/2 time.....	287.50
Research Assistant	
Full time for 1 week @ \$1000/mo.....	250.00
1 week report preparation, full time.....	250.00
Fringe Benefits (21%)	286.00
Indirect Costs (43.7%)	595.50
Expendable Supplies	50.00

Site 4 (continued)

Travel	
Car rental @ \$10.00/day for 5 days.....	\$ 50.00
Mileage Charge of .22/mile for 500 miles...	110.00
Lodging for 4 nights @ \$20.00/night for two persons.....	160.00
Per Diem: 10 person days @ \$17.00/day.....	170.00
Contractual Services	75.00
Final Report Preparation	450.00
Total Project Cost	<u>\$3309.00</u>

Site 5 Courthouse and Census Records (Ste. Genevieve, Mo.)

Historian	
Full time for 1 week @ \$2300/mo.....	\$ 757.00
1 week report preparation, 1/2 time.....	287.50
Research Assistant	
Full time for 1 week @ \$1000/mo.....	250.00
1 week report preparation, full time.....	250.00
Fringe Benefits (21%)	286.00
Indirect Costs (43.7%)	595.50
Expendable Supplies	50.00
Travel	
Car rental @ \$10.00/day for 5 days.....	50.00
Mileage Charge of .22/mile for 600 miles...	132.00
Lodging for 4 nights @ \$20.00/night for two persons.....	160.00
Per Diem: 10 person days @ \$17.00/day.....	170.00
Contractual Services	75.00
Final Report Preparation	450.00
Total Project Cost	<u>\$3281.00</u>

SUMMARY

The preceding pages have broadly traced the history of the Pine Ford Lake area from the 18th to the 20th century. Emphases have been placed on site locational data to assist in field surveys, and in the development of tentative economic and settlement models that can be tested with further research. A major emphasis of the project was also the assessment of various archival resources, both to search for locational data necessary at this stage of the research and to pinpoint prime archival sources for future study.

Cultural geographical and historical data were recovered for periods reflecting French, Spanish, and American settlement and development of the area. In all time periods, the limited geographical extent of the actual project area has meant that data have needed to be interpreted in the context of broader regional patterns.

The actual project area has remained relatively isolated from impinging influences throughout the historic period, and vestiges of earlier cultural, linguistic, and economic patterns still remain. This isolation has resulted in slower rates of culture change than are seen in the immediate environs.

The general project region was an important element of the total French effort in the Midwest in the 18th century; the extent to which French activity is represented by archeological remains still is to be determined.

It is doubtful that additional research will generate substantial site-specific locational data for the 18th century, but it certainly will provide a better understanding of the milieu in which the area developed, and the ways in which it articulated with external markets and administrative centers. Specific archeological sites for this period probably will be found only through actual field survey, and the schematic models which have been developed suggest what some of the priority-potential areas are, based on topography and resource potential.

The lack of site-specific information persists into the early 19th century, but by mid-century the land had been systematically surveyed and more specific data are available. Again, the schematic models have suggested relationships between different types of sites, and these can be tested archeologically. In addition, archeological testing should reveal ethnic and economic statuses of various groups and persons present, and delineate the differences between the articulate and inarticulate segments of society. By the end of the 19th century it becomes clear that the main transportation and economic networks have skirted the actual project area, and stagnation sets in. Archeological distinctions between the project area proper and the surrounding area should be discernible, and these differences should be supported and further explicated in documentary research.

The Pine Ford Lake area is a prime example of the unique advantages that accrue to historic research when documentary and archeological field research are combined. Future research in this important area of North American frontier and economic development will be of substantial significance if both sources of data are fully integrated and the ethnohistorical approach is utilized.

BIBLIOGRAPHY

Alvord, Clarence Walworth

1920 The Illinois Country, 1673-1818. Illinois Centennial Commission, Springfield.

A general history of the Illinois country based on primary sources such as the Jesuit Relations.

American State Papers

Public Lands, Vols. I-VIII
Miscellaneous, Vol. I

Archives de Guerre, Serie A¹

Scattered documents relating to military affairs in French Louisiana; these are of only peripheral value for the project area.

Archives Nationales, Serie Coloniale 13

This is the single most important repository of documents for the French in North America. Some of the documents include general information on the project area.

Austin, Moses

1832 Description of Lead Mines in Upper Louisiana. American State Papers, Public Lands, I:206-09.

Communicated to the 8th Congress (2nd session) 8 November 1804, describing mineral resources, output, and processes.

Barker, Eugene C. (editor)

1924a The Austin Papers. Annual Report of the American Historical Association for the Year 1919. Vol. II, part 1. Government Printing Office, Washington, D.C.

1924b The Austin Papers. Annual Report of the American Historical Association for the Year 1919, Vol. II, part 2. Government Printing Office, Washington, D.C.

Barnes, C. R.

1807 Description of Surrounding Country Lead Mines - Austin - Mine a Breton - Soil and Farming. F. Bates Papers, Missouri Historical Society Archives.

Beck, Lewis C.

- 1823 Gazetteer of the States of Illinois and Missouri.
Charles and George Webster, Albany.

This book gives descriptions of mines, springs, and the terrain of the region.

Bek, William G. (translator)

- 1919 Gottfried Duden's Report, 1824-1827. Missouri Historical Review XII(1)-XIII(3).

Letters of Duden, an early settler, to his family and friends in Germany describing life in the Missouri Territory.

Bellovich, Steven J.

- 1970 The Establishment and Development of the Main Colonial-Territorial Route of Lead Movements in Eastern Missouri, 1700-1965. Unpublished Master's thesis, Southern Illinois University.

Belting, Natalie Marie

- 1943 The French Villages of the Illinois Country. Canadian Historical Review XXIV(1):14-23.

- 1948 Kaskaskia Under the French Regime. University of Illinois Press, Urbana, Illinois.

Bernard, Eunice

- 1938 Marriage Records of Washington County, Mo., 1814-1860. Privately published, Potosi, Missouri.

On file at Missouri Historical Society, St. Louis. Includes an index of brides and lists marriages by year.

- 1939 Wills and Administrations, Washington County, Mo., 1814-1870. Privately published, Potosi, Missouri.

Bibliotheque Nationale, Salle des manuscrits

In addition to housing the original manuscripts of important published collections like Margry, this collection contains some correspondence bearing on Upper Louisiana, including the project area.

Billington, Ray Allen

- 1967 Westward Expansion: A History of the American Frontier, 3rd ed. Macmillan and Sons, New York.

Billon, Frederich

- 1886 Annals of St. Louis in its Early Days Under the French and Spanish Dominations. G. I. Jones and Co., St. Louis.

Black, W. R.

- 1967 Growth of the Railway Network of Maine: A Multivariate Approach. University of Iowa Discussion Papers, No. 5.

Blair, Emma Helen

- 1912 The Indian Tribes of the Upper Mississippi Valley and the Region of the Great Lakes, Vols. 1 and 2. Arthur H. Clark Cleveland.

The author describes Indian lifeway as well as history using primarily accounts of early French missionaries and explorers. Although this set does not contain much information specifically applicable to the project area, the fur trade system is well covered, particularly in relation to the effects the trade had on traditional Indian culture.

Blouet, Brian W.

- 1972 Factors Influencing the Evolution of Settlement Patterns. In Man Settlement and Urbanism, edited by Ruth Tringham, Peter J. Ucko, and G. W. Dimbleby, pp. 3-15. Gerald Duckworth, London.

Boggess, Arthur C.

- 1908 Settlement of Illinois, 1778-1830. Chicago Historical Society, Chicago.

Boyer, Mary Joan

- 1956 Jefferson County Missouri in Story and Pictures. Hillsboro, Missouri.

Brackenridge, Henry Marie

- 1962 Views of Louisiana Together with a Journal of a Voyage Up the Missouri River, in 1811. Quadrangle Books, Chicago. Reprint of 1814 ed., Cramer, Spear, and Eichbaum, Pittsburgh.

A discussion of the discovery, settlement, and natural resources of the Louisiana and Missouri Territories is presented. Sections on navigable rivers, trade with Indians, and the Ste. Genevieve Mining District were most helpful. The development of mining in the Old Mines area is discussed.

Bradbury, John

- 1966 Travels in the Interior of America. University Microfilms, Ann Arbor. Reprint of original 1817 ed., Sherwood, Neely, and Jones, London.

John Bradbury had been commissioned by the Botanical Society of Liverpool to investigate plant life in the United States. After establishing a base at St. Louis, Bradbury traveled throughout Missouri, and

eventually down the Mississippi River to New Orleans. Most of this volume, his journal, describes his journey up the Missouri River. While he did not visit the Big River itself, he wrote about early settlements, mines, and Indian tribes he either saw or heard about during his stay in Missouri.

Bratton, Samuel Tilden

- 1917 Some Geographical Influences in Development of Type Railroads in Missouri. Unpublished Master's thesis, University of Missouri.

Brink, McDonough and Company

- 1876 An Illustrated Historical Atlas Map of Jefferson County, Missouri. Edwardsville, Illinois.

A collection of plat maps indicating structures, mines, smelters, roads, and bridges in the county.

Broadhead, Garland

- 1914 Early Missouri Roads. Missouri Historical Review VIII:90-92.

A verbal description of major roads based on first-hand knowledge. These include: Boonslick Road, Salt Road, Middle Salt River Road, Manchester Road, and Springfield Road.

Brown Margaret Kimball

- 1979 Fort Kaskaskia Evokes Memories of Conquest and Settlement. Historic Illinois 2(2):2-3.

Brown, Margaret Kimball and Lawrie Dean

- 1977 The Village of Chartres in Colonial Illinois: 1720-1765. Polyanthos, New Orleans.

Brown, Samuel R.

- 1817 The Western Gazetteer: Or Emigrant's Directory. n. p., printed by H. C. Southwick, Auburn, New York.

Caldwell, Dorothy J. (editor)

- 1963 Missouri Historic Sites Catalogue. State Historical Society of Missouri, Columbia, Missouri.

Caldwell, Norman Ward

- 1941 The French in the Mississippi Valley, 1740-1750. The University of Illinois Press, Urbana, Illinois.

Campbell, R. A.

- 1873 Campbell's New Atlas of Missouri. S. Augustus Mitchell, Philadelphia.

Some data on agriculture, industry, and mining is presented, but not much in the way of locational data.

- 1874 Campbell's Gazetteer of Missouri.
- 1874 Campbell's New Atlas of Missouri, 5th ed. S. Augustus Mitchell, Philadelphia.
- No new information in this edition; identical to the 1873 edition.
- Careless, J. M. H.
1954 Frontierism, Metropolitanism, and Canadian History. Canadian Historical Review XXXV(1)1-21.
- Carey, H.
1814 Missouri Territory formerly Louisiana. Map from Carey's Atlas on file at the Missouri Historical Society, St. Louis.
- No locational data; the project area is shown as a white space.
- 1816 Missouri Territory formerly Louisiana. Map on file at the Missouri Historical Society, St. Louis.
- Single page from unknown work attributed to Carey. No useable locational data.
- Carver's Travels
1778 A New Map of North America from the Latest Discoveries. London. Map #67 in the "Pre-Federal Maps" group, National Archives and Records Service, Washington, D.C.
- On this map, the project area is labeled "Mines".
- Casagrande, Joseph B., Stephen I. Thompson, and Phillip D. Young
1964 Colonization as a Research Frontier: The Ecuadorian Case. In Process and Pattern in Culture, Essays in Honor of Julian H. Steward, edited by Robert A. Manners, pp.281-325. Aldine Publishing, Chicago.
- Castel, Albert
1968 General Sterling Price and the Civil War in the West. Louisiana State University Press, Baton Rouge.
- Chapman, Berlin Basil
1974 Oto and Missouri Indians. American Indian Ethnohistory Series. Garland Publishing, New York.
- Chapman, Carl H.
1959 The Little Osage and Missouri Indian Village Sites ca. 1727-1777 A.D. Missouri Archeologist XXI:1-67.

- 1974 Osage Indians III. American Indian Ethnohistory Series. Garland Publishing, New York.
- Chapman, Carl H. and Dale R. Henning
1974 Osage Indians IV. American Indian Ethnohistory Series. Garland Publishing, New York.
- Chapman, Carl H. and Eleanor F. Chapman
1964 Indians and Archaeology of Missouri. Missouri Handbook, No. 6. University of Missouri Press, Columbia, Missouri.
- Charlevoix, Francois, Xavier de
1744 Journal Historique. 6 volumes. Paris.
- Christaller, Walter
1966 Central Places in Southern Germany. Translated by C. W. Baskin. Prentice-Hall, Englewood Cliff, New Jersey.
- 1972 How I Discovered the Theory of Central Place. In Man, Space, and Environment, edited by P. W. English and R. C. Mayfield, pp. 601-10. Oxford Univeristy Press, London.
- Clark, Philip J. and Francis C. Evans
1954 Distance to Nearest Neighbor as a Measure of Spatial Relationships in Populations. Ecology 35(4):445-53.
- Clark, William
1814 Missouri Territory. Clark Collection, on file at the Missouri Historical Society, St. Louis.
- Colton, J. H. and Company.
1855 Missouri. New York. Map on file at the Missouri Historical Society, St. Louis.
- Cram, George F.
1878 Cram's Standard American Atlas of the United States. Chicago.
- Dacey, Michael
1960a The Spacing of River Towns. Annals of the Association of American Geographers L(1):59-61.
- 1960b Derivation of Nearest Neighbor Distances. Journal of Regional Science II:59-61.
- Deslodge Family Papers
1844 Collection on file at the Missouri Historical Society, St. Louis.

- Donnelly, S. J.
1968 Jacques Marquette, S. J., 1637-1675. Loyola University Press, Chicago.
- Douglas, Francis P.
n.d. Register of the Baptisms and Marriages at the Church of St. Joachim, Old Mines, Missouri, 1820-1827. Old Mines, Missouri.
- Douglass, Robert Sidney
1961 History of Southeast Missouri. Lewis Publishing, New York and Chicago. Reprint of original 1912 ed. by Ramfree Press, Cape Girardeau, Missouri.
- Edom, Clifton C.
1962 Missouri Sketch Book: A Collection of Words and Pictures of the Civil War. Kelly Press, Columbia, Missouri.
- General information about the Civil War period in Missouri; no locational data for the project area was included in this volume.
- Ellis, James Fernando
1929 The Influence of Environment on the Settlement of Missouri. Webster Publishing, St. Louis.
- Esarey, Mark
1980 Locational Preference in the Settlement of Pike County, 1825-1872. Paper presented at Midwest Archaeological Conference, Chicago.
- Eschbach, Walter and Malcolm C. Drummond
1968 Historic Sites of Jefferson County, Missouri. Harland Bartholomew and Associates, Hillsboro Missouri.
- Espinosa, J. Mouvel
1938 Spanish Louisiana and the West: The Economic Significance of the Ste. Genevieve District. Missouri Historical Review XXXII:287-97.
- Fehon, Jacqueline R.
1975 Environmental Setting in the Cache River Archeological Project. Arkansas Archeological Research Series No. 8.
- Fiala, John T.
1871 Map of the State of Missouri. R. P. Studley, St. Louis. On file at the Missouri Historical Society, St. Louis.

- Finnegan, Josephine C.
 1952 Sainte Genevieve, Missouri: A Study in Human Geography. Unpublished Master's thesis, St. Louis University.
- Flint, Timothy
 1828 A Condensed Geography and History of the Mississippi Valley. 2 vols. William F. Farnsworth, Cincinnati.
 1968 Recollections of the Last Ten Years. Da Capo Press Reprint Series, edited by Wallace D. Farnham. Da Capo Press, New York. Reprint of the original 1826 ed., Boston.
 This volume consists of a collection of letters describing the Upper Mississippi valley to his father James Flint. Flint lived in or near St. Charles, Missouri for four years. Flint comments on the westward migration of the early 19th century, the state of professions, the cost of living, and Indian tribes in the area.
- Foley, William E.
 1971 A History of Missouri, 1673 to 1820, Vol. 1. University of Missouri Press, Columbia, Missouri.
- Franzwa, Gregory
 1967 The Story of Old Ste. Genevieve. Patrice Press, St. Louis.
- Gardner, James A.
 1956 The Business Career of Moses Austin in Missouri. Missouri Historical Review. L:235-47.
- Gates, Paul W.
 1932 The Railroads of Missouri, 1850-1870. Missouri Historical Review IIVI:126-45.
- Gauthier, H. L.
 1966 Highway Development and Urban Growth in Sao Paulo, Brazil: A Network Analysis. Unpublished Ph.D. dissertation, Northwestern University.
- Gerlach, Russel L.
 1976 Immigrants in the Ozarks: A Study in Ethnic Geography. University of Missouri Press, Columbia.
- Getis, Arthur and Barry Boots
 1978 Models of Spatial Processes: An Approach to the Study of Point, Line, and Area Patterns. Cambridge University, Cambridge.
- Gibson, A. M.
 1963 The Kickapoo: Lords of the Middle Border. University of Oklahoma Press, Norman.

This book is one of the few which addresses the history of the Kickapoo in Wisconsin and Illinois. Gibson also discusses their subsequent removal west of the Mississippi River during the early 19th century. Although little site specific information is presented for the Big River area, Gibson describes Kickapoo activities in Missouri, and traces their forced migration through the state enroute to Oklahoma, Texas, and Mexico.

Giraud, Marcel
1953

Histoire De La Louisiane Francaise, Le Regne De Louis XIV (1698-1715), tome premier. Presses Universitaires De France, Paris.

1958 Histoire De La Louisiane, Francaise, Annees De Transition (1715-1717), Vol. II. Presses Universitaires De France, Paris.

1966 Histoire De La Louisiane Francaise, L'epoque De John Law (1717-1720), Vol. III. Presses Universitaires De France, Paris.

1974a A History of French Louisiana, The Reign of Louis XIV, 1698-1715, Vol. I. Translated by Joseph C. Lambert. Louisiana State University Press, Baton Rouge.

1974b Histoire De La Louisiane Francaise, La Louisiane Apres Le Systeme De Law (1721-1723), Vol. IV. Presses Universitaires De France, Paris.

Goodspeed Publishing Company

1888 Goodspeed's History of Franklin, Jefferson, Washington, Crawford, and Gasconade Counties, Missouri. Chicago.

Goetz, Bruce

1969 Iron Ore Mining in Missouri. Unpublished Master's thesis, Southern Illinois University.

Gras, Norman S. B.

1922 An Introduction to Economic History. Harper Brothers, New York.

Gussow, Zachery and Raleigh Barlowe

1974 Sac, Fox, and Iowa Indians I. American Indian Ethnohistory Series. Garland Publishing, New York.

Haggett, Peter

1966 Locational Analysis in Human Geography. St. Martin's Press, New York.

Haggett, Peter and Richard J. Chorley
1969 Network Analysis in Geography. St. Martin's Press,
New York.

Hall, James and Thomas C. McKenny
1934 The Indian Tribes of North America. John Grant, Ed-
inburgh.

Hanley, Lucy Elizabeth
1942 Lead Mining in the Mississippi Valley During the Co-
lonial Period. Unpublished Master's thesis, St.
Louis University.

Hennepin, Father Louis
1972 A New Discovery of a Vast Country in America, Vols. 1
and 2. Kraus Reprint Company, New York. Reprint of
1903 ed., edited by Reuben Gold Thwaites, A.C. Mc-
Clurg, Chicago. Original ed. published in London,
1698.

A detailed description of the New World is presented
with particular attention to the Mississippi Valley
and the Great Lakes. The mineral wealth of the Mis-
souri area is discussed, and some locational infor-
mation is provided.

Higginbotham, Valle
1968 John Smith T., Missouri Pioneer. Privately publish-
ed, Potosi, Missouri.

Available at the Washington County Library.

Higginbotham, Valle and John I. Smith
1961 Meramec Basin Sites. Historic Preservation Papers.

Correspondence about historic sites in the Meramec
Basin and data on those sites. Available at the Mis-
souri Historical Society, St. Louis.

Hodges, Nadine and Mrs. Howard Woodruff
1978 Missouri Pioneers. County and Genealogical Records,
Vol. III.

Contains an index to the 1850 census which includes
all household names together with ages and nativity.

Houck, Louis
1908 A History of Missouri, Vol. I. R. R. Donnelly and
Sons, Chicago.

In-depth history of the exploration, settlement, and
politics of the Missouri Territory based, for the
most part, on primary sources. Some locational data

was found in this work; the bibliography was also useful.

- 1909 The Spanish Regime in Missouri, Vol. I. R. R. Donnelly and Sons, Chicago.

House, John H.

- 1977 Survey Data and Regional Models in Historical Archeology. In Research Strategies in Historical Archeology, edited by Stanley South, pp. 241-60. Academic Press, New York.

Huback, Robert R.

- 1961 Early Midwestern Travel Narratives: An Annotated Bibliography, 1634-1850. Hubach, Detroit.

Hudson, John C.

- 1969 A Location Theory for Rural Settlement. Annals of the Association of American Geographers LVIII(2):365-81.

Illinois Historical Survey

This includes maps and manuscripts in photostat form from the French Archives. Located in Urbana, Illinois.

Imlay, Gilbert

- 1969 A Topographical Description of the Western Territory of North America. Augustus M. Kelly, New York. Reprint of 1797 ed., DeBrett, London.

Iron Mountain Company's Lands in Southeast Missouri

n.d. Woodward & Tiernan Printing, St. Louis.

Jennings, Dorothy

- 1930 Railroad Development in Missouri Before the Civil War. Unpublished Master's thesis, Washington University.

Johnson, Hugh Nelson

- 1950 Sequent Occupance of the St. Francois Mining Region. Unpublished Ph.D. dissertation, Washington University.

This work was very useful for determining the landscape changes in the area. Johnson proposed several cultural-geographical periods which were useful for the development of ours. Locational data is not specific enough to allow for site plotting; however, the bibliography was useful in tracking down site-specific sources.

Joutel, Henri

- 1906 Joutel's Journal of LaSalle's Last Voyage, edited by Henry Reed Stiles. Joseph McDonough, New York. Facsimile of original 1714 ed., A. Bell, B. Lintott, J. Baker, London.

Joutel's journal, written shortly after his journey with LaSalle in 1687, described the Ste. Genevieve area in some detail, and indicated that he may have been the first to establish a monthlong camp within the Ste. Francois mining region.

- 1966 The Last Voyage Perform'd by dela Sale. University Microfilms, Ann Arbor. Facsimile of original 1714 ed., A. Bell, B. Lintott, J. Baker, London.

Kaskaskia Manuscripts (see Randolph County Courthouse Records)

Kedro, Milon James

- 1973 The Three Notch Road Frontier: A Century of Social and Economic Change in the Ste. Genevieve District. Missouri Historical Society Bulletin XXIX:189-204.

Kedro claims that the road from Ste. Genevieve to Mine la Motte serves as a case study interrelating the agrarian, mining, and town frontier of American history; the road is indicated on a 1904 map.

Kenneth Family Papers

- 1830 Letters, notes, deeds, and records pertaining to the
1833- family business in Jefferson County. On file at the
1839 Missouri Historical Society, St. Louis.

King, Leslie

- 1968 A Quantitative Expression of the Pattern of Urban Settlements in Selected Areas of the United States. In Spatial Analysis: A Reader in Statistical Geography, pp. 159-67. Prentice-Hall, Englewood Cliffs, New Jersey.

Kitchin, T.

- 1763 A New Map of the British Dominions in North America with the Limits of the Governments annexed thereto by the late Treaty of Peace and Settled by Proclamation, October 7, 1763. Map #38 in the "Pre-Federal Maps" group, National Archives and Records Service, Washington, D.C.

Includes the Mississippi Valley but most details are on the east side of the River.

Klein, Ada Paris

- 1949 Lead Mining in Pioneer Missouri. Missouri Historical Review. XXXXVIII:251-70.

Discusses mining prior to 1800, the Austin family, methods of mining, the expansion of mining activity, and the influence of mining on Missouri. No locational data specific enough to plot is presented.

Lachene, R.

- 1965 Networks and the Location of Economic Activities. Regional Science Association Papers, 14.

Lange, Frederick and Charles R. Smith

- 1979 A Statewide Plan for the Study of Historic Sites: A Basis for Determination of Individual Site Significance. In press, Bloomington, Illinois.

Lewis, Kenneth E.

- 1973 An Archeological Consideration of the Frontier. Papers in Anthropology, Volume 14, No. 1. University of Oklahoma Press, Norman.

- 1977 Sampling the Archaeological Frontier: Regional Models and Component Analysis. In Research Strategies in Historical Archeology, edited by Stanley South, pp. 151-201. Academic Press, New York.

- 1980 Pattern and Layout on the South Carolina Frontier: An Archaeological Investigation of Settlement Function. North American Archaeology 1(2).

Litton, Howard C.

- 1978 History of Jefferson County, Missouri and Festus and Crystal City. Privately published.

Available at the Washington County Library.

Luckingham, Brad

- 1965 A Note on the Lead Mines of Missouri: Henry Schoolcraft to William H. Crawford, 1820. Missouri Historical Review LIX:344-48.

McCandless, Perry

- 1972 A History of Missouri, 1820-1860. University of Missouri Press, Columbia, Missouri.

McCarthy, William R.

- 1952 The Spanish Regime in Missouri, 1762-1800. Unpublished Master's thesis, St. Louis University.

McDermott, John Francis (editor)

- 1969 Frenchmen and French Ways in the Mississippi Valley. University of Illinois Press, Urbana, Illinois.

A variety of papers on political, military, architectural, social, scientific and cultural aspects of the history of the French in the Mississippi Valley

are presented. Of particular interest were several chapters on early French settlements, trade interactions, and cultural characteristics and concepts which affected the settlement of the project area.

McManis, Douglas R.

1964 The Initial Evaluation on Utilization of the Illinois Prairies, 1815-1840. University of Chicago Press, Chicago.

McVey, William

1972 Yesteryears: A study of Missouri's First Roads and Transportation Systems in Central Missouri. Unpublished manuscript, Missouri State Historical Society, Columbia.

Maduell, Charles R. (editor)

1972 The Census Tables for the French Colony of Louisiana from 1699 through 1732. Genealogical Publishing, Baltimore.

A Map of British Dominions in North America As Settled by the Late Treaty of Peace

1763 Map #37 in the "Pre-Federal Maps" group, National Archives and Records Service, Washington, D.C.

Details include towns, tribal villages and geographic remarks, but mostly east of the Mississippi.

Margry, Pierre (editor)

1879- Memoires et Documents Pour Sevir a l'histoire des
1888 origines francaises des pays d'outermer, decouvertes
et etablissements des Francais dans l'ouest et dans
le sud de l'Amerique septentrionale (1614-1754).
Maisonnette et cie, Paris.

Marriott, Alice

1974 Osage Indians II. American Indian Ethnohistory Series. Garland Publishing, New York.

Miners Prospect

20 September 1819.

Published by Ferguson and Dallam in Potosi. Available at Missouri Historical Society, St. Louis.

Missouri Gazette

This paper underwent numerous name changes including: Louisiana Gazette, Missouri Gazette and Public Advertiser, Missouri Republican, Daily Missouri Republican, St. Louis Republican, Missouri Republican, and St. Louis Republic.

Missouri History Papers

- 1815- Manuscript on file at the Missouri Historical Society,
1868 ty, St. Louis. Accounts of travels through southeastern Missouri including descriptions of Ste. Genevieve, Cape Girardeau, St. Louis County, Potosi, Herculaneum, and so on.

Missouri, State of

- 1979 Guide to County Records on Microfilm. Archives Information Bulletin, Vol. 1, No. 3. Office of the Secretary of State, Records Management and Archives Service.

Moll, H.

- 1720 A New Map of the North Parts of America claimed by France under ye Names of Louisiana, Mississippi, Canada, and New France with ye Adjoining Territories of England and Spain. Map #17 in the "Pre-Federal Maps" group, National Archives and Records Service, Washington, D.C.

On this map, the project area is labelled "This Whole Country is full of Mines".

Moore, Adella Breckenridge

- 1940 Notes on Washington County, Missouri.

A collection of clippings on file at the Missouri Historical Society, St. Louis, this body of data did not contain much in the way of specific locational data.

Musick, John R.

- 1897 Stories of Missouri. American Book Company, New York.

The early history of Missouri is presented in story-like form; some specific information on the Old Mines area and the lead industry is presented, but most of this is undocumented.

Nagel, Paul C.

- 1977 Missouri: A Bicentennial History, W. W. Norton, New York.

A survey of the political and historical development of Missouri is presented with little specific information on the mining industry in the project area.

Nason, Frank L.

- 1892 A Report on the Iron Ores of Missouri. Geological Survey of Missouri, Vol. 2. Aug. Gast Banknote and Litho, St. Louis.

The work contains valuable historical geographical information including mining locations and a discussion of transportation systems in the development of Missouri.

Nasatir, Abraham P. (editor)

1952 Before Lewis and Clark: Documents Illustrating the History of the Missouri, 1785-1804. 2 volumes. St. Louis Historical Documents Foundation, St. Louis.

1968 Spanish War Vessels on the Mississippi, 1792-1796. Yale University Press, New Haven.

A detailed study of the Spanish fleet on the Mississippi taken from naval documents and diaries of Spanish officers, this work does not provide locational data, nor information specifically about the project area.

1976 Borderland in Retreat: From Spanish Louisiana to the Far Southwest. University of New Mexico Press, Albuquerque.

Although this work does not contain much in the way of locational data, or information about the history of the project area, it does provide an interesting backdrop for the lands called Spanish Louisiana. The work discusses the shift from early settlements such as New Orleans and St. Louis to hinterland areas throughout the west.

National Archives and Records Service

1975 Pre-Federal Maps in the National Archives. Washington, D.C.

National Archives and Record Service

Population Schedules of the Censuses of the United States.

Commonly called the manuscript censuses, these documents are available for the years from 1790 to 1880 and 1900. They contain a great deal of information and should be consulted for a general picture of the population of the area and for information on the inhabitants of individual sites. Before 1850 the information contained is of limited value. After 1850, the following data are available: (1) names and ages of each family member or free person in a given household; (2) the occupation of each person (useful in locating miners, local craftsmen, etc.); (3) a measure of social and economic status of the family based on the number of servants and hired servants and hired laborers; (4) the value of property, both

real and personal; (5) the place of birth of each individual, helpful in establishing migration patterns; (6) level of literacy; and (7) race. Slave schedules give names, sex, and ages.

Neenan, Robert Patrick

Problems of the Spanish Regime in the Middle Mississippi Valley, 1762-1803. Unpublished Master's thesis, St. Louis University.

O'Callaghan, Mary Meade

1936 St. Genevieve in the Spanish Regime, 1770-1804. Unpublished Master's thesis, St. Louis University.

Ogle, George A. and Company

1898 Standard Atlas of Jefferson County, Missouri. Chicago.

This volume includes plat maps showing structural and natural features, plus contains a brief historical sketch of the county.

1918 Standard Atlas of Franklin County, Missouri. Chicago.

Parrish, William E.

1973 A History of Missouri, 1860-1875, Vol. III. University of Missouri Press, Columbia, Missouri.

Penn, Dorothy and Marie George Windell (editors)

1945- The French in the Valley. Missouri Historical Review, XXXX:90-122, 245-75, 407-30, 562-78; XXXXI:77-106, 192-216, 305-14, 391-405.

This source contains a wide variety of documented information on the French in Missouri.

Peugnet Collection

1870 Map of St. Francois County and Map of Gregory Sarbyland in Jefferson County.

Map on file at Missouri Historical Society, St. Louis.

Post, Lauren C.

1933 Domestic Animals and Plants in French Louisiana. Louisiana Historical Quarterly XVI:554-86.

Pred, E. R.

1966 The Spatial Dynamics of U.S. Urban Industrial Growth, 1800-1914: Interpretive and Theoretical Essays. MIT Press, Cambridge.

Price, Cynthia R. and James E. Price

- 1977 An Archaeological and Historical Literature Review of the Cape Girardeau-Jackson Metropolitan Area, Cape Girardeau, Missouri. Report Submitted to U.S. Army Corps of Engineers, St. Louis District, St. Louis, Missouri

Randolph County Courthouse Records

Early manuscripts (known at the Kaskaskia Manuscripts) from the French period in Illinois and Upper Louisiana are on microfilm here, available for use.

Randolph, Vance

- 1976 Pissing in the Snow and Other Ozark Folktales. University of Illinois Press, Urbana, Illinois.

Rickard, T. A.

- 1966 A History of American Mining, 1st edition. Johnson Reprint Corporation, New York. Reprint of original 1932 ed., McGraw-Hill, New York.

Rimmer, P. J.

- 1967 The Changing Status of New Zealand Seaports. Annals of the Association of American Geographers LVII (1): 88-100.

Rothensteiner, John Ernest

- 1928 History of the Archdiocese of St. Louis in its Various Stages of Development from A.D. 1673 to A.D. 1928. Blackwell Wielandy, St. Louis.

Roussin, Madelyne (editor)

- 1938- Racial Groups Retaining Ethnic Identities in Southeast Missouri. WPA-HRS publication. On file (Folder #21971) at the Missouri State Historical Society, Columbia, Missouri.

Rubin, J.

- 1967 Urban Growth and Development. In The Growth of Seaport Cities: 1790-1825, edited by David T. Gilchrist, pp. 3-21. University Press of Virginia, Charlottesville.

Russell, Howard S.

- 1976 A Long Deep Furrow: Three Centuries of Farming in New England. University Press of New England, Hanover, New Hampshire.

Rutledge, Zoe Booth

- 1970 Our Jefferson County Heritage: Reminiscences of Early Missouri. Ranfree Press, Cape Girardeau, Missouri.

This work did not contain useful information for the project area.

Ste. Genevieve Parish Records

Records of the earliest settlers of Ste. Genevieve, made available to the project by Mrs. Lucille Basler of Ste. Genevieve, who possesses photostats of these records.

Ste. Genevieve Archives

Stored in the Ste. Genevieve County Courthouse, these resources are not available to the general public. Court approval was obtained for their use by the project.

Saint Louis Atlas Publishing Company

1878 Atlas Map of Franklin County, Missouri. St. Louis.

Available at Missouri Historical Society, St. Louis.

Sampson, Francis Asbury

1912 Bibliography of Books of Travel in Missouri. Columbia, Missouri.

Sauer, Carl O.

1920 The Geography of the Ozark Highland of Missouri. The Geographic Society of Chicago Bulletin, No. 7.

Sayer, Robert

1775 Course of the River Mississippi from the Balise to Fort Chartres; Taken on an Expedition to the Illinois, in the latter end of the Year 1765. By Lieut. Ross of the 54th Regiment: Improved from the Surveys of that River made by the French. London. Contained in the "Pre-Federal Maps" group, National Archives and Records Service, Washington, D.C.

Schaff, Ida M.

1935 The First Roads West of the Mississippi. Missouri Historical Review, XXIX:92-99.

A detailed description of the location of the Ste. Genevieve-Mine la Motte Trail and the King's Highway which ran from St. Louis to Ste. Genevieve to New Madrid.

1944 Baptisms, Marriages, Burials, and Some Tombstone Records of the Church of St. Joachim of Old Mines, Missouri, 1827-1851.

Manuscript on file at Missouri Historical Society, St. Louis.

Scharman, J. H.

1930 From Quebec to New Orleans. Belleville, Illinois.

- Schoolcraft, Henry R.
 1819 A View of the Lead Mines of Missouri. Charles Wiley, New York.
- 1821 Journal of a Tour into the Interior of Missouri, Arkansas and from Potosi or Mine a Burton, in a South-west Direction, Toward the Rocky Mountains, in the Years 1818 and 1819. Phillips and Company, London.
- 1974 A View of the Lead Mines of Missouri. Arno Press, New York. Reprint of original 1819 ed. Charles Wiley, New York.
- Schroeder, Walter A.
 1977 Bibliography of Missouri Geography: A Guide to Written Material on Places and Regions of Missouri. University of Missouri Press, Columbia, Missouri.
- Schrowang
 1915 Official Road Map of Missouri. On file at the Missouri Historical Society, St. Louis.
- Selby, Paul Owen
 1966 A Bibliography Of Missouri County Histories and Atlases, 2nd ed. Kirksville, Missouri.
- Shalhope, Robert E.
 1971 Sterling Price: Portrait of a Southerner. University of Missouri Press, Columbia, Missouri.
- Shoemaker, Floyd C.
 1943 Missouri and Missourians, Vol. 1. Lewis Publishing, Chicago.
- Smith, Charles Raymond
 1978 The Grand Village of the Kickapoo: An Historic Site. Unpublished Master's thesis, Department of History, Illinois State University.
- 1979 Euro-American Settlement Patterns in the Lower Illinois River Valley. Paper presented at the 1979 Midwest Archaeological Conference, Milwaukee.
- Smolensky, E. and D. Ratejczak
 1965 The Conception of Cities. Explorations in Entrepreneurial History, Second Series, No. 2.
- Stoddard, Amos
 1812 Sketches, Historical and Descriptive of Louisiana. M. Carey, St. Louis.
- Stout, David B., Erminie Wheeler-Voegelin, and Emily J. Blasingham
 1974 Sac, Fox, and Iowa Indians II. American Indian Ethnohistory Series. Garland Publishing, New York.

Surrey, Nancy M. Miller

1916 The Commerce of Louisiana During the French Regime, 1699-1763. Ph.D. dissertation. Published by Columbia University Studies in History, New York.

1922 The Development of Industries in Louisiana During the French Regime. 1673-1763. Mississippi Valley Historical Review IX:227-37.

Swallow, G. C.

1855 First and Second Annual Reports of the Geological Survey of Missouri. James Lusk, Public Printer, Jefferson City, Missouri.

Swartzlow, Ruby Johnson

1934- Early History of Lead Mining In Missouri. Missouri Historical Review XXVIII:184-94, 287-95: XXIX:27-34, 109-14, 195-205.

This series of articles presents an account of lead mining in the St. Francois mining region from 1700 to 1820. The author also discusses the influence mining had on the region, and does provide some locational data applicable to the project area.

Taaffe, E. J., R. L. Morrill, and P. R. Gould

1963 Transport Expansion in Underdeveloped Countries: A Comparative Analysis. Geographical Review LIII(4): 503-29.

Temple, Wayne C.

1966 Indian Villages of the Illinois Country. Illinois State Museum Scientific Papers, Vol. 2, Part 2, Rev. ed. Illinois State Museum, Springfield.

Combining primary and secondary sources, Temple presents a brief ethnohistory of the historic Indian Tribes in Illinois. He describes tribal movements throughout Illinois and, to some extent, within the present state of Missouri. The Illini, Fox, Sauk, Kickapoo, Shawnee, and Delaware all influenced the history of Missouri, and the reasons for their movement into the state are discussed.

Thomas, Rosemary Hyde

1979 Sociocultural Description of Missouri French Culture and Language. NEH #PD-33399, Interim Reportory, June.

Thurman, Melburn D.

1980 Personal Communication, July 1980.

Thwaites, Reuben Gold (editor and translator)

1901 Jesuit Relations and Allied Documents. 78 vols. Burrows Brothers, Cleveland.

This set contains an indexed collection of letters and other documents applicable to the Jesuit period in New France. Locational data, history, and Indian Relations in the project area are discussed.

Trigger, Bruce G.

1968 The Determinants of Settlement Pattern. In Settlement Archeology, edited by K. C. Chang, pp. 53-78. National Press Books, Palo Alto, California.

Tucker, Sara Jones

1942 Indian Villages of the Illinois Country. Illinois State Museum Scientific Papers, Vol. 2, Part 1. Illinois State Museum, Springfield.

Tucker, Sara Jones and Wayne C. Temple

1975 Indian Villages of the Illinois Country. Illinois State Museum Scientific Papers, Vol. 2, Part 1. Illinois State Museum, Springfield.

United States Government Surveys, Missouri Field Notes

Microfiche copies of surveyors' notes from the original land survey of Missouri, on file at the State Historical Society of Missouri, Columbia. Comments on land quality, surface minerals, vegetation, and settlements are made.

Vaudreuil Manuscripts

Manuscripts with census information, on file at the Missouri Historical Society, St. Louis. (Call number HMLO 426.)

Violette, Eugene M.

1918a Spanish Land Claims in Missouri. Washington University Humanities Series, VIII:167-200.

1918b A History of Missouri. D. C. Heath, Boston.

Voget, Fred W.

1974 Osage Indians I. American Indian Ethnohistory Series. Garland Publishing, New York.

Wallace, J.

1893 The History of Illinois and Louisiana Under the French Rule. R. Clarke, Cincinnati.

Walters, William D., Jr.

1977 The Making of the Urban Pattern in Central Illinois: 1831-1895. Bulletin of the Illinois Geographical Society XIX(1):3-15.

Ward, David

- 1971 Cities and Immigrants: A Geography of Change in Nineteenth-Century America. Oxford University Press, New York.

Whebell, C. F. J.

- 1969 Corridors: A Theory of Urban Systems. Annals of the Association of American Geographers LIX(1):1-26.

Wheeler, David L. and Daniel L. Hagger

- 1971 The Influence of Railroads on Prairie Settlement in Central Illinois. Bulletin of the Illinois Geographical Society XII(2):30-35.

Wilhelm, Paul

- 1973 Travels in North America, 1822-1824. The American Exploration and Travel Series, Vol. 63, translated by W. Robert Nitske and edited by Savoie Lottinville, University of Oklahoma Press, Norman.

Paul Wilhelm, Duke of Wurttemberg, traveled up the Mississippi River from New Orleans, then westward up the Missouri River between 1822 and 1824. Wilhelm describes the European and native American inhabitants he encountered, early industry, and the manner in which Europeans adapted to the New World environment.

Will, F.

- n.d. Map of Washington County, Missouri. W. T. Hunter and M. E. Rhoades, Potosi, Missouri.

Willis, Maynard L.

- 1933 The Construction of Railroads in Southeast Missouri. Unpublished Masters thesis, University of Missouri.

The author discusses the development of railroads to 1893, and the attitudes and rivalries associated with the early lines. He also discusses the effect the railroads had on urban development.

Willms, Welton Lyle

- 1935 Lead Mining in Missouri 1700-1811. Unpublished Master's thesis, Washington University.

Winslow, Arthur

- 1894 Lead and Zinc Deposits (Section 1). Missouri Geological Survey, Vol. VI. Tribune Printing Company, Jefferson City, Missouri.

- 1894 Lead and Zinc Deposits (Section 1). Missouri Geological Survey, Vol. VII. Tribune Printing Company, Jefferson City, Missouri.

These volumes contain a significant amount of detailed information on mining and mining processes in the St. Francois mining region. Site locational data is also presented; however, much of this was taken from earlier writers such as Brackenridge and Schoolcraft.

Wood, Martha May

1943 Traces in Early Missouri, 1700-1804. Missouri Historical Review, XXXVIII:12-24.

This work describes the location of Indian trails and roads used by settlers during the French and Spanish regimes.

Woodruff, Mrs. Howard W. (compiler)

1976 State-Wide Genealogical Records.

This work contains the death register from 1883-1886; although no site data is presented, this information may be useful in researching owners of sites in the project area.

1979 Franklin County Homesteads Before 1831. Missouri Miscellany (March).

Yealy, Francis J.

1935 Sainte Genevieve, The Story of Missouri's Oldest Settlement. Ste. Genevieve.

APPENDIX I:
Summary of Informant Contacts

Father Graham
Archivist
Old Cathedral
St. Louis, Mo.

Custodian of old church records which were checked and found not to be applicable to this project.

Hansen, Robert
Franklin County Abstract Co.
Union, Mo.

He is a member of the Franklin County Historical Society and was helpful with old plats of Franklin County found at the abstract company.

Heinze, Dorothy
Secretary, Mastodon State Park
Route 4, Stephenson Road
Imperial, Mo.

Came into contact with her through the Rural Parish workers. She is knowledgeable about local history and sites, and according to Terry Norris, St. Louis District, U.S. Army Corps of Engineers, was responsible for organizing the drive to create Mastodon State Park.

Johnston, Doris
Jefferson County Abstract Company
Hillsboro, Mo.

She is the office manager of the abstract company, was helpful regarding access to its records, and provided us with various publications about the area from her private library.

Magre, Frank
Crystal City, Mo.

Mr. Magre is very knowledgeable about the history of the area, and was extremely helpful in pinpointing specific site locations. He also allowed us to make copies of his slides of local historic structures.

McIntyre, Kathleen
Senior Manuscript Specialist
Western Historical Manuscript Collection
University of Missouri
Columbia, Mo.

She advised on potentially useful sources available in Columbia, and was helpful in obtaining the microfilms of Ste. Genevieve archives.

O'Brien, Jean
Box 118
Festus, Mo.

We met Mrs. O'Brian through the Rural Parish workers. She has expertise in local history.

Perry, Alan
Federal Archives
Kansas City, Mo.

He was contacted to find out what was available at the Federal Archives. No useful information was obtained.

Rural Parish Workers of Christ the King
(Secular Institute of the Archdiocese of St. Louis)
Route 1, Box 300
Cadet, Mo.

Miss LaDonna Herman and Miss Alice Widmer are the co-founders of the Olds Mines Area Historical Society. This group is interested in the history of southeastern Missouri and, more specifically, the French dialect and culture of the area. The Rural Parish Workers were invaluable as they provided us with local expertise and were very willing to help in our gathering of information.

Thomas, Rosemary Hyde
Director of Creative Growth Programs
488 W. Lockwood Ave.
Webster Groves, Mo.

We met Rosemary Hyde Thomas through the Rural Parish Workers and she provided us with two of her own studies on the area: Socio-cultural Description of Missouri French Culture and Language (1979) and Some Aspects of the French Language and Culture of Old Mines, Missouri (1979).

Some other sources were identified during the research but could not be contacted because of time limits and/or schedule conflicts.

Blake, Leonard
Research Associate, Anthropology
Washington University

Although we had been informed that he was at the Academy of Science every Thursday afternoon, telephone calls and messages produced no response. He is said to be very informed about the area.

Father Faraday
St. Louis University
St. Louis, Mo.

He is an expert on French history, but was out of the country at the time of the report.

Golterman, Elizabeth
Jefferson County Historical Society

She met with our research team during the second week of the project and aided in the identification of the potential historic sites near the project area.

Hall, Leonard
Possum Trot, Mo.

He is a local historian who is generally knowledgeable about the area, but he provided us with no site-specific locational data.

Primm, Alexander
University of Missouri-Rolla
Rolla, Mo.

He is familiar with the history of mining in Missouri.

Mink, Claudia
Science Museum
St. Louis, Mo.

She was formerly employed at the Academy of Science and History Museum and is familiar with the area.

APPENDIX II:
Summary of Archival Utilization and Evaluation of
Archival Resources

The archival research for the project was principally carried out by Ekberg, Smith, Seckinger, Moy, and Vogel. This research had two separate objectives: (1) to find site specific historic locational data that could be of use during the archeological surveys, and (2) to accumulate general historical information regarding demography, settlement patterns, transportation, and economic and social systems that could be used in constructing models to describe and explain the changes that occurred in this unique area through time. All sources described in our original proposal were visited and evaluated, along with numerous others encountered during the course of the research. The following summary describes the individual archival repositories and their contents.

The Cabildo (New Orleans, La.)

This is a major source of documents for the French period, but the archives are currently being reorganized and will not be open to most researchers for an estimated 4 years. Vogel spent parts of 2 days there and is of the impression that substantial amounts of data are present.

Franklin County Courthouse (Franklin, Mo.)

Germane sources on file here are probate records dating as far back as 1819, deeds, and two plat maps, dated 1878 and 1918, both with labeled structures. Moy carried out the research here.

Illinois Historical Survey, University of Illinois (Urbana, Il.)

This collection includes several hundred French manuscripts (photostats and transcriptions) pertaining to Illinois in the pre-1763 (French) period, and in this period the entire Ste. Genevieve District was within the Illinois Territory. These were the only documents readily available that dealt with the pre-1756 period. Although these manuscripts are often the letters, orders, and directives that were sent from French government officials in Paris or New Orleans to the Illinois Territory, they also include some rich materials on local history of the general project area. There is, for example, a detailed and fascinating account of the lead mining and smelting process used on the Fourche Renault in 1743. This document is one of the photostats in this collection taken from the manuscripts in the Archives Nationales in Paris. Ekberg carried out the research here.

Illinois State University Library (Normal, Il.)

A substantial collection of resources, including the American State Papers, were available and utilized for site location

and general background data. The ASP were found to contain site specific data relevant to mining activities in the project area. Smith carried out the research here.

Jefferson College (Hillsboro, Mo.)

Jefferson College has little information that is not available elsewhere. However, in fall 1980 the College will begin compiling materials for a local history center. It will be under the direction of Dr. Barry Ellis, Chairman of the History Department, who is quite knowledgeable about the area's history. Seckinger and Moy carried out the research here.

Jefferson County Courthouse (Hillsboro, Mo.)

The county records available here are deed records dating back to 1819, and probate records from about the same time. There are approximately 300 wills from the 19th century. The 1898 Standard Atlas of Jefferson County is on file. All records are well kept and organized. Jelks, Lange, Moy, Seckinger, Smith, and Vogel carried out the research here.

Kaskaskia Archives (Chester, Il.)

This archive was quickly checked to see if it contained data relevant to the project area. Review of a place name index to the archive indicated 1756 was the earliest reference to Ste. Genevieve, and that there were no mentions of Renault, Mine a Breton, Moses Austin, lead or other related topics. This survey was carried out by telephone by Lange.

Mercantile Library (St. Louis, Mo.)

This library has nothing unique for the project. Any information available in this private library can be obtained elsewhere. There is also a user's fee (\$25). Moy and Seckinger carried out the research here.

Missouri Department of Natural Resources (Jefferson City, Mo.)

We requested they check their files for historic sites in the project area. We received reports on a number of sites, all of which had been previously identified from other sources. These files are currently being revised and updated. Michael S. Weichman proved the file information.

Missouri Historical Society (St. Louis, Mo.)

Holdings pertinent to this project include a complete collection of the Missouri Historical Review, Missouri Historical Society Bulletin, and a map collection which includes the Illustrated Historical Atlas of Jefferson County, Missouri (1878), both with site specific locational data, and Campbell's New Atlas of Missouri with Descriptions; Historical, Scientific, and Statistical (1873), having information on mining, agriculture, and industry. In the Society's archival holding are the Deslodge Family papers and Valle Family papers. The Valle Family was definitely the most important family in the Ste. Genevieve District during the period 1755-1804, and the entire project area is within what was once this administrative district. The Valle manuscripts are a

rich source for the history of the entire area, providing information on lead mining, slavery, agriculture, social structure, and local administrative details. This information was invaluable in meeting objective #2 as defined above, but does not include site specific data within the project area. A large collection of secondary sources concerning general Missouri history is also available here. All holdings are well organized and catalogued. The staff is very cooperative, and the facilities provided for the use and storage of these materials are excellent. There is a modest user's fee. Ekberg, Lange, Moy, Seckinger, Smith, and Vogel carried out the research here.

Missouri State Archives (Jefferson City, Mo.)

As a resource for this project the Missouri State Archives proved to be of little use. The information needed is housed at the State Division of Geology: Land Survey, Rolla, Mo. In a longer, more intensive investigation, it would be advisable to recheck potential source material as new references are continually being added. As of now, pertinent maps and locational data are not here. Moy, Seckinger, and Vogel carried out the research here.

National Archives and Record Service (Washington, D.C.)

Subsequent to submittal of the first draft, a visit to the National Archives was made in connection with another project. While there, maps located at the Center for Cartographic and Architectural Archives were examined. The headings and record groups checked included "Missouri", "Mississippi River", "Transportation in the Nineteenth Century", and "Pre-Federal Maps in the National Archives". The more useful maps were found in the "Pre-Federal Maps ..." group. Moy carried out the research here.

Newberry Library (Chicago, Il.)

Secondary source material dealing with southeastern Missouri seems to be abundant at the Newberry Library. This source should be further investigated. They are currently working on an Atlas of Great Lakes Indian History which only marginally overlaps with this project. Some useful information concerning alternate map sources such as the Sanborn Map Inventory Form: Missouri is available. This source is said to be from the University of Missouri, but was not observed there. Seckinger carried out the research here.

Archival Sources in Paris, France

Dr. Ekberg conducted a brief examination of several repositories in Paris, including the Archives Nationale and the Bibliotheque Nationale. Royal correspondence with the various governors of the American colonies, maps, registers, ships' records, and government grants were found but only a quick perusal could be made due to time restrictions. Further work here would undoubtedly yield additional relevant information.

Standing Structure Survey

A survey of standing structures in the project area has been made by Medford and Denny under the auspices IAS-Atlanta.

Although studied separately, these structures also are considered historic archeological sites.

State Division of Geology: Land Survey (Rolla, Mo.)

This, by far, was the best facility investigated on the project, in terms of easy access and proper storage of material. Relevant to this study are the original G.L.O. township plats (ca. 1850), with certain geographical information recorded. There are no structural data present. Also, the original field notes from both public and private surveys pertaining to the project area are available, being recopied precisely and easy to read. Unfortunately, few proved to be useful for the project, although appropriate township surveys were ordered for more in-depth study. Seckinger and Vogel carried out research here.

St. Francois County Courthouse (Farmington, Mo.)

Materials available here include Government Land Office survey maps, and probate records. It should be noted that the G. L.O. maps do not include property owners or land descriptions. The probate records date to the 1820s, but are organized alphabetically rather than chronologically, which hampers research. There are no plat books for this county, and the oldest map with labeled properties dates to 1928. Moy carried out the research here.

St. Louis University (St. Louis, Mo.)

Again, books on general Missouri history are housed here, but are commonly available. Some masters theses and doctoral dissertations do apply generally to the project area. Moy carried out the research here.

St. Paul Title Company (Hillsboro, Mo.)

Located directly across the street from the courthouse, the St. Paul Title Company possesses several deeds which predate those at the courthouse, the earliest being dated 1808. The manager of the company, Mrs. Doris Johnson, indicated that she personally owns a small collection of local histories which she very generously shared with members of the research team. There is nothing in her collection that is not duplicated in regular library collections such as those found at the Washington County Library in Potosi. Jelks, Lange, and Moy carried out the research.

Ste. Genevieve County Courthouse (Ste. Genevieve, Mo.)

The records here are divided into two categories: (1) the pre-1804 materials, which are unbound and available to researchers only in microfilm form, and (2) the bound materials beginning in 1804. The manuscript materials from the pre-1804 French and Spanish period being available only in microfilm presented us with some problems. The filming had been done so recently that we had difficulties receiving a lending copy for study. This was obtained from the Western Historical Manuscripts Collection at Columbia, but the first group of microfilms did not arrive until 28 April, and a second, smaller group arrived on 30 April. Ekberg had less than one week to study these data prior to 2 May. A second problem is not all of the manuscripts are legible in microfilm form. However, Ekberg has examined much of this material, and also spoke

with Lucille Basler of the Old Settlement Abstract and Title Company in Ste. Genevieve. Over the years she has gone over these materials with more care than anyone else. From his reading of the microfilms thus far, and from his conversations and correspondence with Ms. Basler, Ekberg has tentatively concluded that the Ste. Genevieve archives are a rich source on the general social and economic history (especially slavery) of the Ste. Genevieve District for the period 1770-1804. These manuscripts provide little or no site-specific data for the project area, and they are of little value for the period 1756-1770. They provide no data whatsoever for the pre-1756 period, and this latter fact is probably due to Ste. Genevieve having been founded only in 1752, despite dates some historians have set at some 20 to 30 years earlier. Ekberg and Vogel carried out research in the Ste. Genevieve Courthouse, and Ekberg has done the research on the microfilm data.

University of Missouri (St. Louis, Mo.)

There are no relevant theses or dissertations on file here, and other general materials are available elsewhere. Moy carried out the research here.

Washington County Courthouse (Potosi, Mo.)

Materials that apply to the project area include copies of the Spanish Land Grants (ca. 1888), a plat map dated 1868, and the county probate records. Unfortunately, neither the 1868 plat nor the Spanish land grants offer any specific locational or structural data, and a 1907 fire destroyed some records. The earliest probated wills do offer insights into the economic conditions of the pre-19th century Potosi area and should be further investigated. Jelks, Lange, Moy, Seckinger, Smith, and Vogel carried out the reasearch here.

Washington County Library (Potosi, Mo.)

This library has an excellent collection of local history materials; previously their holdings were greater, but a tornado and fire during the past half century have taken their toll.

Western Historical Manuscript Collection, State Historical Society of Missouri Manuscripts--Joint Collection, University of Missouri (Columbia, Mo.)

Four major sources of information were checked:
University of Missouri Agricultural Extension Records, 1912-1966. The complete collection is on microfilm, but of no use for locational and historical data for this project.

Missouri, Washington County, Lead Mining Books, 1834-1913. This collection is stored in a repository in Kansas City and was not available for use. It cannot be utilized in Kansas City either; thus it is necessary to ask to have them transferred to Columbia. There was insufficient time to request access during the current project.

U.S. Work Projects Administrations, Historic Records Survey, Missouri, 1935-1942. Historic records, mine surveys, statistical data, and probate records are included, as well as genealogical records and county histories from the Federal Writers Project. The entire collection was checked and some information was useful.

French and Spanish Archives, 1763-1847. This is not manuscript material, but microfilm of lost documents from the St. Louis Archives. Moy, Seckinger, and Vogel carried out the research here.

Washington University Library (St. Louis, Mo.)

The holdings on Missouri history here are few, and are duplicated in the collection of the Missouri Historical Society. A check of the masters theses and doctoral dissertations did reveal some information on the Old Mines area of use to the project, but all site specific data were for locations outside the impact area. Lange, Moy, and Seckinger carried out the research here.